MANORAMA
YEAR BOOK

1975

TENTH
YEAR
OF
PUBLICATION

MANORAMA PUBLISHING HOUSE
P.B.26, KOTTAYAM, KERALA.

MANORAMA YEAR BOOK 1975

Tenth Year of Publication

Editor: K. M. Mathew
Printed at:
Malayala Manorama Press, Kottayam
Kerala
Published by
Manorama Publishing House
P.B. No. 26
Kottayam-1, Kerala State, S. India
Copyright by Publishers
Price: Rs. 15/-

PREFACE
to
THE TENTH EDITION

We have completed ten years with this edition. It has been a decade of learning for us. The reactions of our readers, from year to year, have been our best guide and teacher. We have amplified and re-edited many features of this Year Book in response to the demands of our readers. But the acute shortage of paper and the increasing costs of publication, have, on the whole, dampened our efforts, to meet the requirements of the readers in full. We hope our readers will pardon our helplessness in this regard.

This Year Book, as we have pointed out earlier, reflects the dynamism of MALAYALA MANORAMA, the oldest and largest circulated daily of Kerala. Founded in 1888, Manorama is today, the largest vernacular newspaper in India. Under a succession of brilliant editors, Manorama has grown into a hallowed institution in Kerala —a martyr for political freedom, a fighter for social justice, a catalyst of economic progress and a promoter of literature and aesthetics.

As a vernacular newspaper, English is technically, out of bounds, for Manorama. But the intellectual heritage of Manorama knows no bounds. While other Indian newspapers, remained tied down to publications in their native tongues, Manorama, broke loose from parochial linguism, to enter the national arena, with a Year Book in English. We take this occasion to record our grateful thanks for the warm welcome, that readers all over India have extended to the book.

The book, as will be evident from the synopsis, covers a multitude of topics, which in their range, may well be termed encyclopaedic.

We hope this book will continue to serve all sections of the Indian intelligentsia—students, teachers, journalists, executives and professionals.

Kottayam, Kerala. K. M. MATHEW,
15th Feb. 1975. Editor.

The big Catch.....

Certainly you have a big catch if you are already using **FAROOKY** tooth powder If not, it is not hard to get this wonderful **TOOTH POWDER** just drop in at any of your favourite stores and buy **FAROOKY** tooth powder **YOUR BIG CATCH** It contains no charcoal It is made of many rare Unani ingredients which ensures healthy gums, whiter teeth, and prevents tooth decay, and keeps your mouth fresh It polishes your teeth while cleaning your mouth

FAROOKY TOOTH .POWDER costs so much less than toothpaste Imagine such an important brand and still not effected by the exorbitant price hike

Buy a pack to day

Save your money
Save your teeth

FAROOKY
TOOTH POWDER

A PRODUCT OF
KARKHANA
ZINDA TILISMATH
Hyderabad-A P INDIA

FTP/EI 74

WHAT THIS BOOK IS

This is a Year Book, with a difference. Every topic is written out in the form of an article, which gives not only background information on the subject but also the latest available data. It is thus a " backgrounder " and " foregrounder " combined.

The book is divided into five parts (i) Space (ii) The World (iii) India (iv) Sports and Games and (v) General Information. The Synopsis shows how the topics are arranged and where to look for information, on any item. All relevant information relating to any topic is given under the title concerned. Cross-references are also indicated at the appropriate places.

Readers will, please, scan the section on General Information, carefully. It contains information on all and sundry topics. **Evolution of Scientific Theories and Principles, Inventions and Discoveries, Development of Medicine and Therapy, Principles of Dietetics, Important Events and Personages of History,** and several odd items like, **Abbreviations, Sobriquets, Superlatives, Weights and Measures and Animal World** are lumped together in this Section. Information on topics, other than those contained in the General Section, will be found under the respective titles in the other Sections.

The Special Feature for the Year is the **Population Problem.** This Feature traces the growth of Population theories from Malthus down to our own days and expounds the difficulties, we have encountered in tackling the population problem in different countries. The latest population figures for all countries, are also provided in the Table attached to the Feature.

The Section on **India** is the core of the book. It gives a complete picture of modern India in all its aspects—political, economic, social and cultural. The States and Territories of India are dealt with in great detail.

Telephone: Office : 22504
Mg. Director 34850

Grams: ‘CHITTIE’

THE MADRAS CHIT FUNDS PRIVATE LTD.

[INCORPORATED IN 1938 – LIABILITY OF MEMBERS LIMITED]

Registered Office:

“A. M. M. BUILDINGS”
56 & 57 Oppanakara Street
COIMBATORE

Paid up Capital and Reserves	**Rs. 304000**
Total Assets as on 31.12.1974 exceeds	**Rs. 9500000**

About 99 Per cent of the Company’s Advances are FULLY SECURED

It has been our great privilege to get all our chit series heavily oversubscribed from the very inception of the Company over 37 years ago. We commence various chit schemes several times a year. Any prospective investor or borrower desiring transactions may contact us for free advice and guidance.

K. KUTTIKRISHNA MENON (Ex-Advocate-General Madras)	**D. H. NAMBUDIRIPAD M. A. B. L.** Advocate	**A. M. MATHEW B. A.**
CHAIRMAN	*VICE-CHAIRMAN*	*MANAGING DIRECTOR*

PRESS OPINIONS

The Publishers are to be congratulated for making available so much information for fifteen rupees.

—Andhra Patrika, Madras.

Indeed, it would not be exaggeration to say that the Book may well be termed a miniature encyclopaedia. The section relating to India contains full informations on all aspects of the country.

—The Assam Tribune, Assam.

The Year Book has established itself as the foremost among its rivals.

—Bhavan's Journal, Bombay.

The Manorama Year Book is different in that every year there are additions as well as welcome changes. It is a sort of Encyclopaedia Indica with a wealth of information almost card indexed for ready reference. The Book deserves the highest commendation and the Editor Mr. K. M. Mathew should be congratulated on the brilliant performance.

—The Blitz, Bombay.

It is a storehouse of up-to-date and useful information.

—The Bombay Samachar, Bombay.

This mini encyclopaedia will be of use to people of all walks of life.

—Deccan Herald, Bangalore.

Manorama Year Book has its own uniqueness and distinction . . . Considering the lucidity of style, nice presentation, detailed discussion and comprehensive coverage of events, it is doubtless that this publication will serve as a reliable guide and an invaluable and indispensable book of reference to academicians, research scholars, university students in particular and educational institutions in general.

—Eastern Economist, Delhi.

It justifies the blurb, 'million facts at your finger tips'.

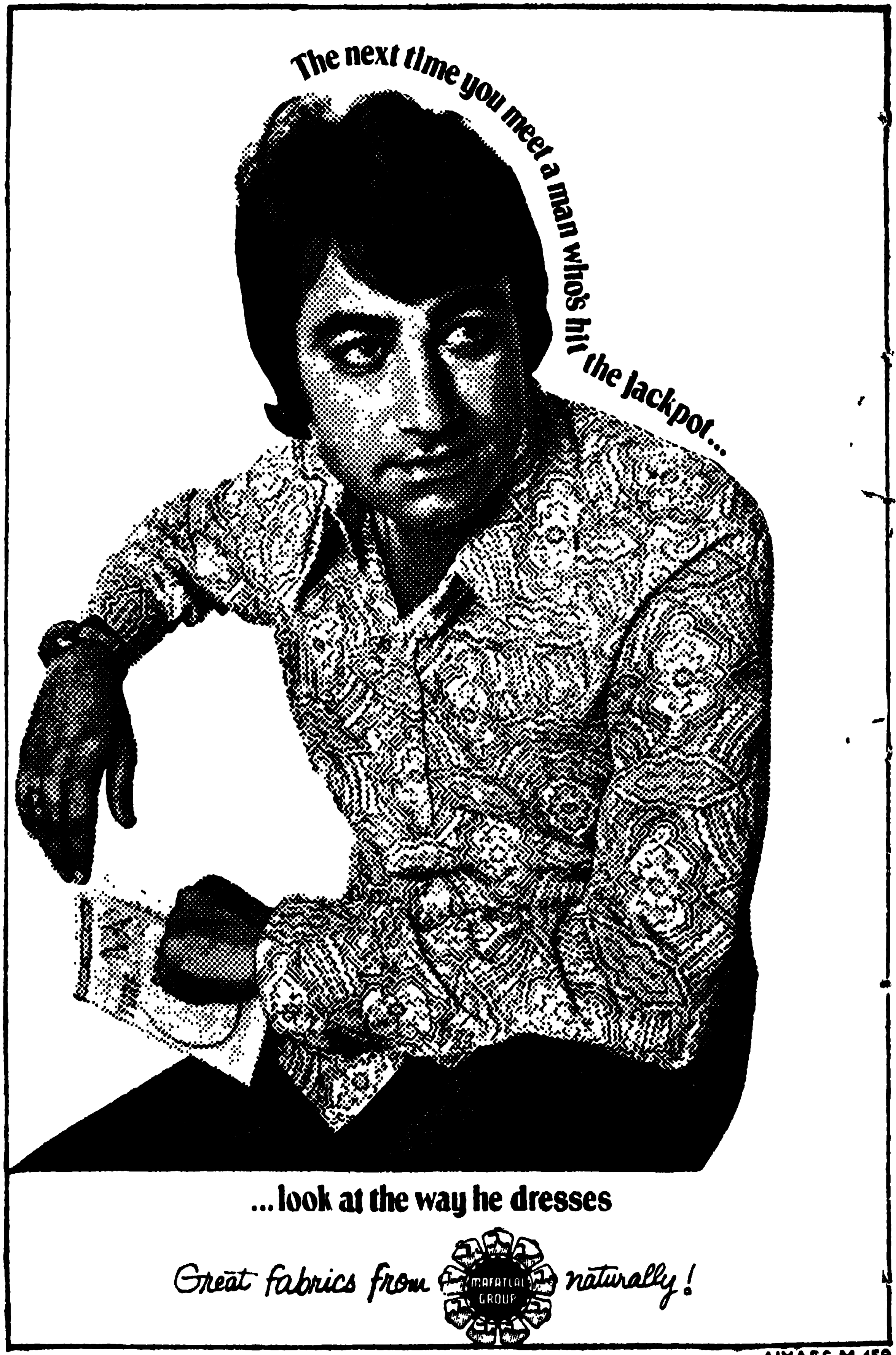
—Economic Times, Bombay.

. . . . Added a new feature this year—short biographical sketches of great personages of history. This ready reference book will be useful to all sections of readers containing as it does a wealth of data on a wide variety of subjects.

—The Hindu, Madras.

The Book contains more information than any other similar publication issued in this country . . . . It is indeed a sort of portable encyclopaedia containing information on all subjects ranging from Archaeology to Zend Avasta.

—Hindustan Standard, Calcutta.



The next time you meet a man who's hit the jackpot...

...look at the way he dresses

Great fabrics from MAFATLAL GROUP *naturally!*

AIYARS-M.459

The Year Book contains more latest information than most of the directories, 'who is who' and reference annuals. . . . It is the poor man's information bank.

—Indian Press, New Delhi.

Manorama Year Book is not a run-of-the-mill Year Book. It covers not only the happenings of the recent past, but also many other topics as well . . . All in all, a very useful volume.

—Jugantar, Calcutta.

This Year Book can positively be called as the mini-encyclopaedia. Apart from political events, those related with sports and science are also included in it. It has been moderately priced at Rs. 15/- and hence it is within the reach of the common reader, anxious to know about India and the World.

—The Kesari, Poona.

The Year Book is rendering a great service of which this issue is a shining example.

—Nagpur Times, Nagpur.

This is an extremely useful reference book. Detailed information about all states are given.

—Nayee Duniya, Indore.

The Book is indeed studded with very useful informations needed by students, journalists, executives and professionals in this country in their day-to-day work. A remarkable feature of this handy encyclopaedia is that every topic included therein has been written out in the form of an article, giving not only its relevant background information but also the latest available data on the subject.

—The Pioneer, Lucknow.

On the whole this Book is a treat for the eyes and a feast for the mind, a bargain for buyers, a must for students, indispensable for libraries.

—Printindia, Madras.

The Editor's Claim that it is a 'handy encyclopaedia with million facts at your finger tips' is fully justified . . . We congratulate the brilliant editors and the publishers for this kind of monumental work.

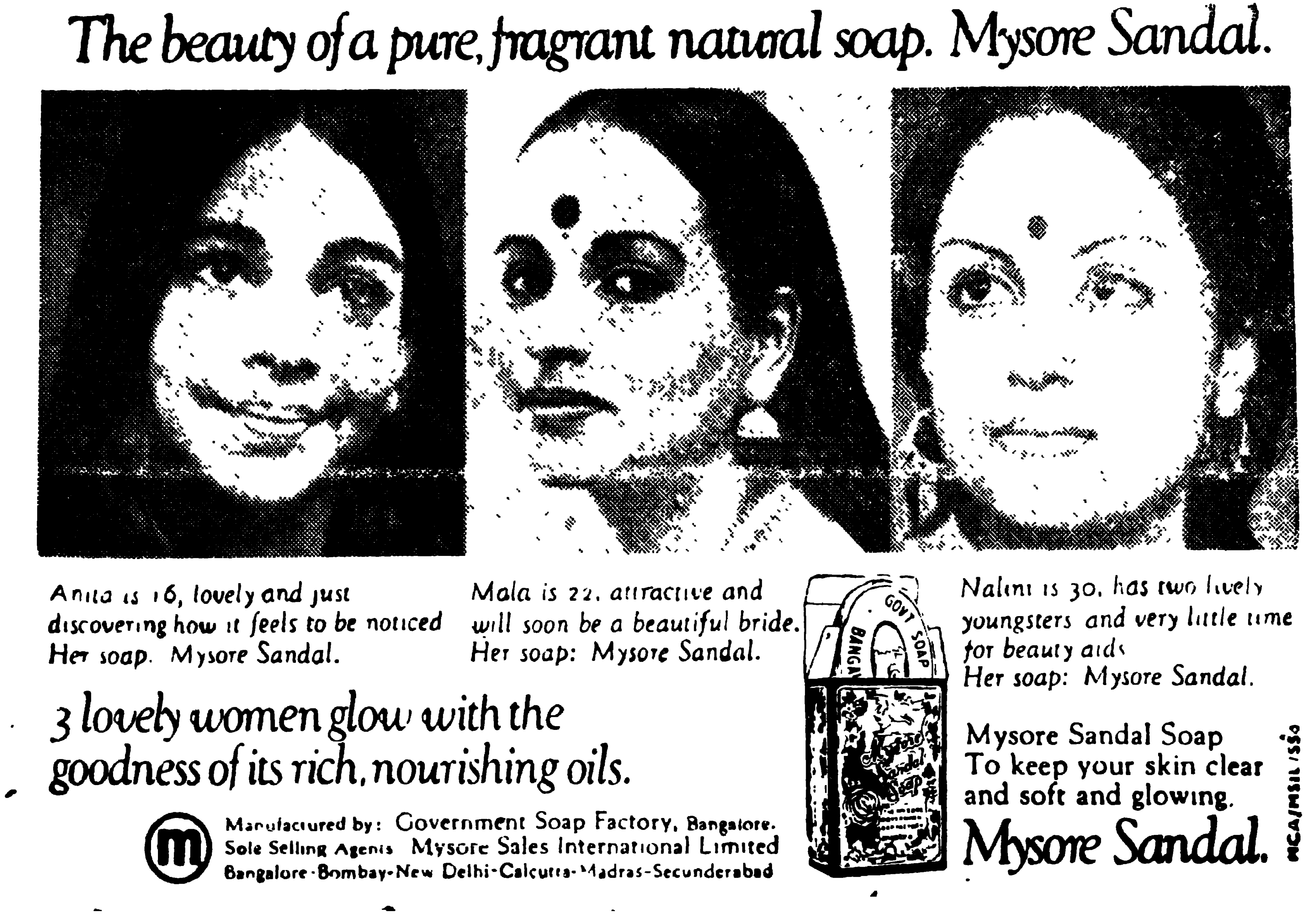
—Sarvodaya, Thanjavur.

The scope of matter covered in the volume may be said to be almost encyclopaedic. The Year Book is bound to be of immense use to students and offices, factories, writers and lecturers alike.

—Sudha, Bangalore.

Packed with statistical data and other interesting information about the social, economic and political set up of regions far and near, this handy volume maintains the traditions set up by the House of Manorama.

—Tribune, Chandigarh.



The beauty of a pure, fragrant natural soap. Mysore Sandal.

Anita is 16, lovely and just discovering how it feels to be noticed
Her soap. Mysore Sandal.

Mala is 22, attractive and will soon be a beautiful bride.
Her soap: Mysore Sandal.

Nalini is 30, has two lively youngsters and very little time for beauty aids
Her soap: Mysore Sandal.

3 lovely women glow with the goodness of its rich, nourishing oils.

Mysore Sandal Soap
To keep your skin clear and soft and glowing.

Mysore Sandal.

Manufactured by: Government Soap Factory, Bangalore.
Sole Selling Agents Mysore Sales International Limited
Bangalore-Bombay-New Delhi-Calcutta-Madras-Secunderabad

MCA/MSIL 1550

CONTENTS

SPACE **65-111**

Space Era 66- 67
Space Research 67- 68
Major Research Projects .. 68- 70
Astral Sciences 71
Astrology 72
Outer Space 73- 75
Modern Astronomy .. 75- 77
Galaxies 77- 79
The Milky Way 79- 80
Stars 81- 82
The Main Sequence .. 82- 83
Magnitudes 83- 84
Life of a Star 85- 87
Constellations 87- 88
Quasars 89- 90
The Sun 91- 92
Planetary Systems 93- 94
Inner Planets 94- 96
Outer Planets 97- 99
Satellites 99-101
The Moon 101-104
Comets 104-106
Asteroids 106-107
Meteoroids 107-108
Manned Flights 109-111

THE WORLD **112-252**

The Earth 113-114
Lithosphere 115-121
Hydrosphere 122-125
Atmosphere 126-128
Biosphere 129-131
Evolution 132-134
Descent of Man 134-137
Beginnings of Civilization .. 137-139
The First Great Civilizations .. 139-140
Religions 140-144
Languages 145-150
Mineral Wealth 150-154
Population and Food (See Special Feature)
World Organisations .. 155-169
Countries of the World .. 177-243
Dependencies 244-248
Heads of States 249-252

INDIA **253-615**

The Country 255
Physiography 256-258
Flaura and Fauna .. 258-260
Climate and Rainfall .. 260-261
The People 262-263
Population 264-270
Religions of India .. 270-276
Languages of India .. 277-284
Landmarks of Indian History 285-287
Constitution and Government 287-293
Constitution Amendments .. 294-299
Political Parties 299-304
Elections 304-308
National Economy .. 309-313
Defence 314-316
Planning .. . 317-321
Public Finance 322-328
Banking and Credit .. 329-338
Currency and Exchange .. 338-341
Land Policy 341-345
The Food Problem .. 345-348
Agriculture, Crops and Seasons 349-352
Irrigation 352-354
Animal Husbandry .. 354-357
Forestry 358-361
Fisheries 361-363
Power 363-367
Minerals and Metals .. 368-370
Industrial Policy 371-372
Industrial Development .. 373-375
The Public Sector . 376-378
The Private Sector . 379-380
The Small Scale Sector .. 381-383
Co-operation 384-387
Trade 388-390
Railways . .. 391-395

Variety is the spice of our life, too.

The Economic Times caters to people of all walks of life, for it covers the whole gamut of economic, political and social events

Brings clear analyses of the political roots of economic developments

Authoritative interpretations of Government policies

Critical studies on Industries

Investigative reporting in depth

Forthright editorials

Management studies and technology corner

And the Arts and the Theatre

The newspaper that interests the specialist and informs the general reader

Get The Economic Times habit. It's the stepping stone to success

THE ECONOMIC TIMES

— the newspaper that reflects social change

Published from Bombay and New Delhi

Dr Dadabhoy Naoroji Road Bombay 400 001 • 7, Bahadur Shah Zaffar Marg, New Delhi.

FOCUS.ET 807

Roads and Waterways .. 395-399
Shipping and Aviation .. 399-405
Posts and Telegraphs .. 406-409
Broadcasting and Television .. 409-411
The Screen 411-413
The Press 413-417
Labour and Employment .. 418-422
National Regalia 422
Education and Research .. 423-425
Health and Social Welfare .. 425-429
Backward Classes 429-431
Wild Life 431-433
Tourism 434-436

STATES OF THE UNION .. **437-551**

Andhra Pradesh 437-448
Assam 449-456
Bihar 456-460
Gujarat 461-466
Haryana 466-469
Himachal Pradesh .. 470-473
Jammu and Kashmir .. 573-478
Karnataka 479-485
Kerala 485-494
Madhya Pradesh 494-499
Maharashtra 499-505
Manipur 506-509
Meghalaya 509-511
Nagaland 512-514
Orissa 514-519
Punjab 519-523
Rajasthan 523-528
Tamil Nadu 528-536
Tripura 536-538
Uttar Pradesh 539-546
West Bengal 546-551

UNION TERRITORIES .. **551-572**

Andaman and Nicobar Islands 552-553
Arunachal Pradesh . 553-554
Chandigarh 555-556
Dadra and Nagar Haveli .. 557-558
Delhi 558-561
Goa, Daman and Diu .. 561-566
Lakshadweep 566-568
Mizoram 568-570
Pondicherry 570-572
Administrative Personnel .. 573-597
Diplomatic Personnel .. 599-615

SPORTS AND GAMES .. **617-689**

Olympic Games 619-631
Commonwealth Games .. 631-637
Asian Games 637-639
National Athletics .. 639-649
National Cycling Championship 649
Boat Race 649-651
Cricket 651-657
Hockey 659-661
Football (Soccer) 661-665
Tennis 665-673
Badminton (Shuttle) .. 673
Ball Badminton 673-675
Basket Ball . .. 675-677
Volley Ball 677
Table Tennis 679-681
Billiards 683
Snooker 683
Chess 683-687
Bridge 689
Boxing 689

GENERAL INFORMATION **690-778**

Numerals 691
Abbreviations 692-703
The Superlatives 704-707
History 707-731
Weights and Measures .. 732 737
Science **738-760**
Awards **760-767**
Universities in India—Statewise **768-769**
Sobriquets **770-771**
Animal World **771-772**
Wonders of the World .. **772-774**
Looking Back—1974 .. **775-778**

SPECIAL FEATURE .. **779-805**
(MALTHUSIAN COILS OR THE PROBLEM OF POPULATION)
Malthus **780-781**
World Population Problem .. **781-784**
Population and Food .. **784-791**
Family Planning **791-795**
The Crux of the Problem .. **795-801**

MAPS .. ..

Continental Drift 117
World 170
Continents 171-176
India 254
States and Union Territories .. 438-570
Index to Advertisers .. **807-808**

GOLDEN
EAGLE
Lager Beer

HOUSE OF Mohmeaks SINCE 1855

MOHAN MEAKIN BREWERIES LIMITED

SYNOPSIS

Part I SPACE 65-111

SPACE ERA 66-67

Rocketry * The First Satellites.

SPACE RESEARCH 67-68

Advantages of Space Studies * Methods of Investigation.

MAJOR RESEARCH PROJECTS 68-70

The Moon * Weather Studies * Communications * Skylabs * Solar Wind * Zodiacal Light * Gegenschein * Mariner Mission.

ASTRAL SCIENCES 71

ASTROLOGY 72

The Zodiac.

OUTER SPACE 73-75

Space (Universe) * Primordial Universe * A Super-dense ball * Expansion * Big Bang Theory * Steady State Theory * Pulsating (Oscillating) Universe Theory * Distances in Space.

MODERN ASTRONOMY 75-77

Optical Astronomy * Refractor Telescopes * Reflector Telescopes * Radio Telescopes * Radar Astronomy Systems * X-ray Astronomy.

GALAXIES 77-79

Peculiar Galaxies * Cluster of Galaxies.

THE MILKY WAY 79-80

Akash Ganga * A Spiral Galaxy * Stellar Population * Galactic Nucleus.

STARS 81-82

Red Giants * Novas * Super Novas.

THE MAIN SEQUENCE 82-83

Our Starry Neighbours * Nearest Stars.

Listen **longer**
Listen **better**

LEAKPROOF

1055 TRANSISTOR BATTERIES

Combining protection with service

The EMD chemical mix in this battery ensures clearer reception, longer listening hours. And unique cell construction—a multi-layered jacket *plus* a cellulose acetate label—makes it leakproof. So your transistor is safe from damage.

EVEREADY
TRADE MARK

always first with the best

UNION CARBIDE

HT-UC-8231

MAGNITUDES 83-84

The Brightest Stars.

LIFE OF A STAR 85-87

White Dwrafs * Neutron Stars or Pulsars * Black Holes * Cygnus X-1.

CONSTELLATIONS 87-88

Star Clusters * Recognised Constellations.

QUASARS 89-90

Quasi Stellar Objects * Discovery of Quasars * Peculiarities of Quasars * Energy Potentials * Matter and Anti-Matter.

THE SUN 91-92

Solar Flares * Solar Wind * Van Allen Belt.

PLANETARY SYSTEMS 93-94

Planets * Planetary Data * Other Planetary Systems.

INNER PLANETS 94-96

Mercury * Venus * Earth * Mars * Mariner 9.

OUTER PLANETS 97-99

Jupiter * Saturn * Uranus * Neptune * Pluto.

SATELLITES 99-101

Satellites of Earth, Mars, Jupiter, Saturn, Uranus, Neptune * Titan.

THE MOON 101-104

Origin * Dimensions * Topography * Apollo XI and After * Moon Rocks * Age of the Moon.

COMETS 104-106

Superstitions * Origin * Orbits * Structure * Some Famous Comets * Kohoutek.

ASTEROIDS 106-107

First Ten Asteroids.

METEOROIDS 107-108

Meteors * Fireballs * Meteorites * Micrometeorites * Tektites.

MANNED FLIGHTS 1961-74 109-111

We've got all our flights going for you!

11

Europe

11 flights a week to Europe
Our 747s fly 8 times a week to London, 4 times to Frankfurt, 5 times to Rome and Paris and our 707 s twice to Moscow and once to Geneva and London.

7

New York

7 flights a week to New York
One flight daily by 747 via the Middle East and Europe The return trip will cost less than the one-way fare if you fly on our **Excursion Fare.**

Also every week:

3 flights to
EAST AFRICA

10 flights to
SOUTH EAST ASIA

6 flights to
JAPAN

2 flights to
MAURITIUS

2 flights to
AUSTRALIA

18

Middle East

18 flights a week to the Middle East.
5 flights to Kuwait and Beirut, 3 to Dubai and Bahrain. 2 each to Abu Dhabi, Dhahran and Teheran, and one to Aden. Muscat, Doha and Cairo

AIR-INDIA

Hi-AI-8219 (A)

Part II THE WORLD 112-252

THE EARTH 113-114

Origin * Age * Earth and Solar System * Structure * Surface * Earth Data.

LITHOSPHERE 115-121

Continental Drift * Plate Tectonics * Plate Movements * Pangaea and Panthalassa * Mountains * Volcanoes * Earthquakes * Islands.

HYDROSPHERE 122-125

Oceans * Demarcation * Deep Sea Trenches * Submarine Topography * Mountains * Rivers * Volcanoes * Tidal Waves.

ATMOSPHERE 126-128

Composition * Atmospheric Layers * Wind Belts * Monsoons * Tropical Storms.

BIOSPHERE 129-131

Problem of the Biosphere * Energy Cycle * Carbon Cycle * Genesis of Oxygen * Heat Cycle * Water Cycle * Climate.

EVOLUTION 132-134

Geological History * Cainozoic Era * Geological Time Scale * Evolution of Life.

DESCENT OF MAN 134-137

Ancestors * Homo Erectus * Modern Man * Major Anthropological Discoveries * Differentiation of Races.

BEGINNINGS OF CIVILIZATION 137-139

Twilight Civilization * Paleolithic * Mesolithic * Neolithic * Chalcolithic.

THE FIRST GREAT CIVILIZATIONS

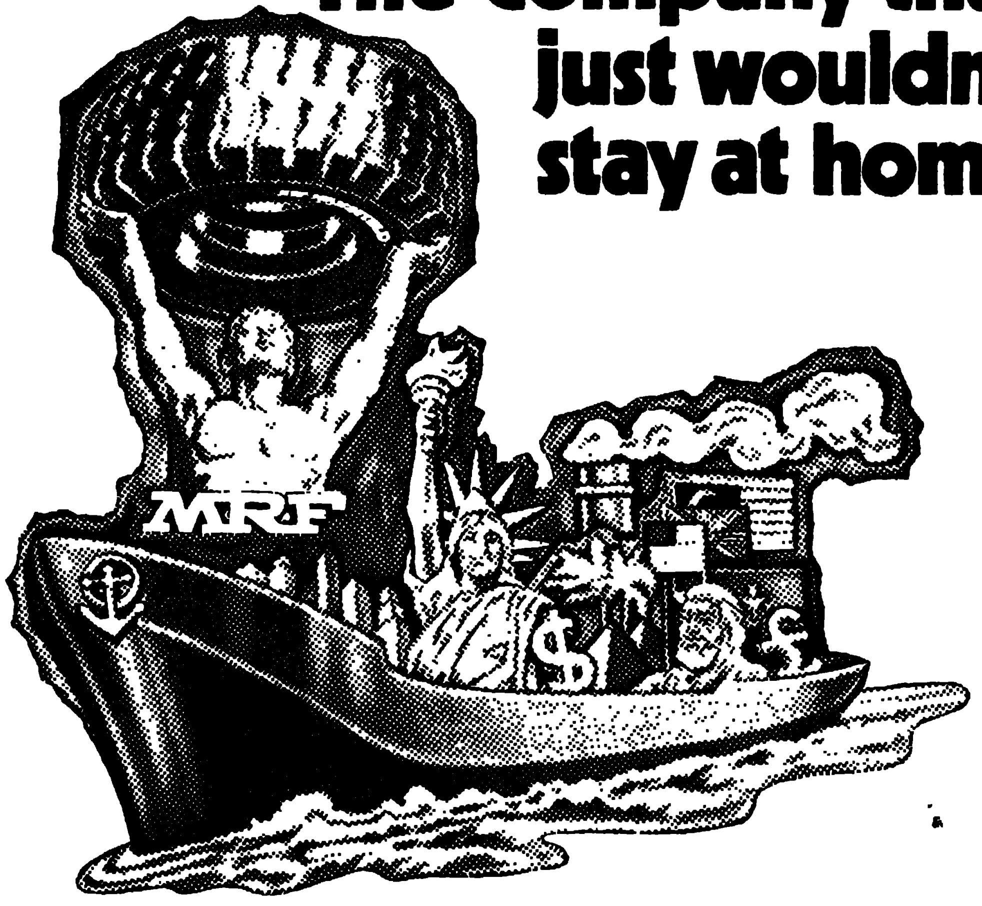
(3000-1000 B.C.) 139-140

City States * Sumeria * Egypt * India.

RELIGIONS 140-144

Buddhism * Christianity * Confucianism * Hinduism * Islam * Jainism * Judaism * Shintoism * Sikhism * Taoism * Zoroastrianism * Membership of the Principal Religions.

MRF
The Company that just wouldn't stay at home



What do you say of a company that's not content with making tyres just for India?
...that exports 20% of its production to Fiji, Mauritius, Greece, Hong Kong, East Africa, the Middle East? And even to the USA—the home of tyre technology?
MRF manufactures the famous Mansfield range of tyres—up to the best international standards. And adapts modern tyre technology to suit Indian needs and conditions.
Today MRF is a large national company, with 30 offices and depots and 3,000 dealers all over the country. Its four factories produce about one million tyres annually. It employs 3,500 people.
You'd think with all this it would be happy to stay at home.
But can you really stop a good company from going places?

Makers of MRF-MANSFIELD Tyres

Madras Rubber Factory Limited, (in collaboration with Mansfield Tire
& Rubber Company, USA) 175/1 Anna Salai, Madras 600 002, India.

LINTAS-MRF. 77-483

LANGUAGES 145-150

Language Families * Indo-European * Semito-Hamitic * Sino-Tibetan * Dravidian * Ural-Altaic * Malayo-Polynesian * African-Negro * American-Indian * Caucasian * Miscellaneous * Major World Languages.

MINERAL WEALTH 150-154

Classification * Major Minerals * Metals and Non-Metals * Fuel Minerals * Oil * Gems.

WORLD ORGANISATIONS 155-169

UNO * General Assembly * Secretariat * Security Council * Trusteeship Council * ECOSOC * International Court of Justice * Members * Auxiliary Agencies * IAEA * ILO * FAO * UNESCO * UNICEF * WHO * IBRD * IFC * IMF * IDA * ICAO * UPU * ITU * INTELSTAT * WMO * IMCO * UNHCR * GATT * UNCTAD * UNCHE * Political Organisations * Commonwealth of Nations * French Community * WEU * European Parliament * Council of Europe * Court of Justice * ASPAC * OAS * Arab League * OAU * OSAM * NATO * SEATO * CENTO * WP * Economic Organisations * Colombo Plan * OEEC & OECD * ECSC * EURATOM * EEC or ECM * EFTA * CMEA * ESRO * ADB * ASEAN * EACSO * Non-Governmental Organisations * RED CROSS * WFTU * WCL * ICFTU * IATA * ICC * IPI.

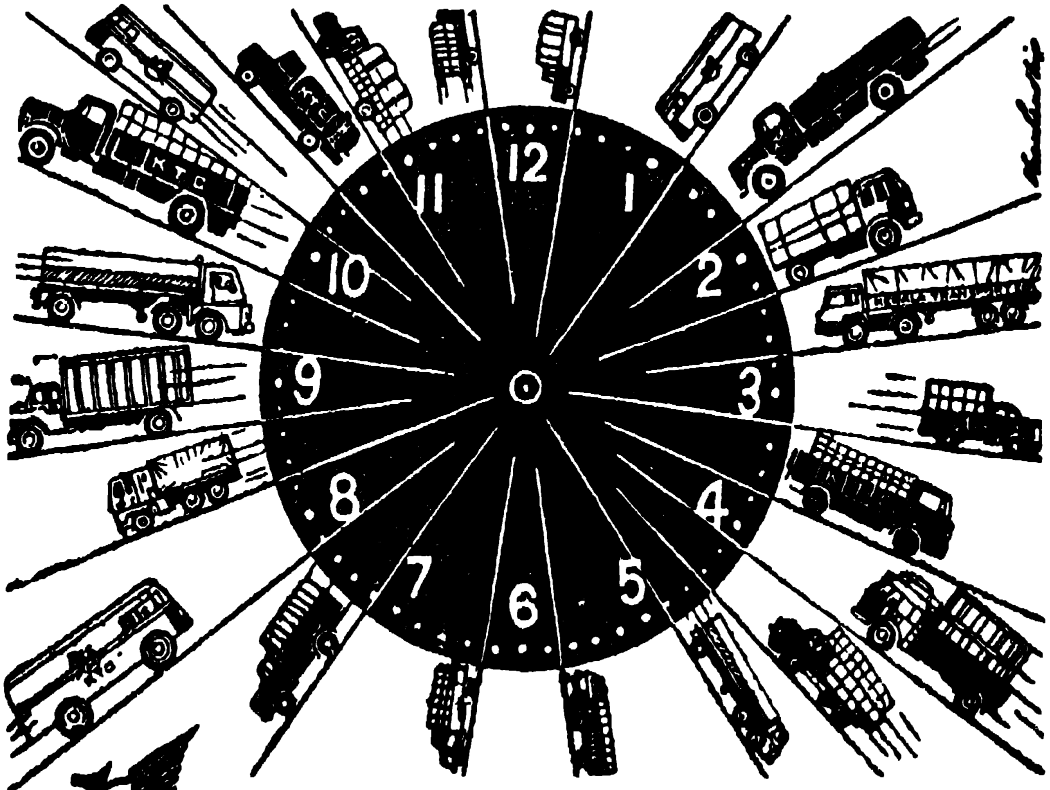
MAPS 170-176

World and Continents.

COUNTRIES OF THE WORLD 177-243

Afghanistan * Albania * Algeria * Andora * Argentina * Australia * Austria * Bahrain * Bangladesh * Barbados * Belgium * Bhutan * Bolivia * Botswana * Brazil * Bulgaria * Burma * Burundi * Cameroon * Canada * Central African Republic * Chad * Chile * China * Colombia * People's Rep. of the Congo * Costa Rica * Cuba * Cyprus * Czechoslovakia * Dahomey * Denmark * Dominican Rep. * Ecuador * Egypt * El Salvador * Equatorial Guinea * Ethiopia * Fiji * Finland * France * Gabon * Gambia * E. Germany * W. Germany * Ghana * Greece * Guatemala * Guinea * Guyana * Haiti * Honduras * Hungary * Iceland * India * Indonesia * Iran * Iraq * Ireland * Israel * Italy * Ivory Coast * Jamaica * Japan * Jordan * Kenya * Khmer

round the clock, round the country round the year KTC wheels rotate



KTC

Ours is one of the leading organisations in India having direct and regular services from and to all important cities as Bombay, Delhi, Culcutta, Madras, Bangalore, Ahmedabad, Hyderabad, Kanpur, Nagpur, Lucknow, Jaipur, Patna, Udhna, Bhadravathi, Berhampur, Rourkela, Rajahmundry, Sangli, Ichelkaranchi, Bhopal, Sholapur, Amritsar, Jullundur, Naini (Allahabad), Ludhiana, etc.

KERALA TRANSPORT CO

H.O: CALICUT

Head Office: Y. M. C. A. Road, Calicut

PHONE: 76062, 76063, 76064, 76065

Rep. (Cambodia) * N. Korea * S. Korea * Kuwait * Laos * Lebanon * Lesotho * Liberia * Libya * Liechtenstein * Luxembourg * Malagasy Rep. (Madagascar) * Malawi * Malaysia * Maldives * Mali * Malta * Mauritania * Mauritius * Mexico * Monaco * Mongolia * Morocco * Muscat and Oman * Nauru * Nepal * Netherlands * New Zealand * Nicaragua * Niger Nigeria * Norway * Pakistan * Panama * Paraguay * Peru * Philippines * Poland * Portugal * Puerto Rico * Qatar * Rhodesia * Romania * Rwanda * San Marino * Saudi Arabia * Senegal * Sierra Leone * Sikkim * Singapore * Somalia * S. Africa * Spain * Sri Lanka * Sudan * Swaziland * Sweden * Switzerland * Syria * Taiwan * Tanzania * Thailand * Togo * Tonga * Trinidad and Tobago * Tunisia * Turkey * Uganda * United Arab Emirates * UK * USA * USSR * Upper Volta * Uruguay * Vatican * Venezuela * N. Vietnam * S. Vietnam * Western Samoa * N. Yemen * S. Yemen * Yugoslavia * Zaire * Zambia.

DEPENDENCIES 244-248

Afars and Issas * Angola * Antigua * Australian Antarctic Territory * Azores Is. * Ashmore and Carter Is. * Bahamas * Bermuda * Bouvet Is. * British Antarctic Territory * British Honduras * British Indian Ocean Territory * British Solomon Is. * British Virgin Is. * Brunei * Canal Zone * Canton and Enderbury Is. * Cape Verde Is. * Cayman Is. * Christmas Is. * Cocos (Keeling) Is. * Comoro Is. * Cook Is. * Ceuta * Dominica * Easter Is. * Faeroe Is. * Falkland Is. * French Guiana * French Polynesia * French Southern and Antarctic Lands * Greenland * Gibraltar * Gilbert and Ellice Is. * Grenada * Guam * Guernsey * Galapagos Is. * Guadeloupe * Heard and McDonald Is. * Hon Kong * Howland, Baker and Jarvis Is. * Ifni * Isle of Man * Jan Mayen * Jersey * Juan Fernandez * Macao * Martinique (W. Indies) * Midway Is. * Montserrat * Mozambique * Namibia * Netherlands Antilles * New Caledonia * New Guinea * Neutral Zone * New Hebrides * Norfolk Is. * Nieu Is. * Papua * Peter Is. * Pitcairn Is. * Portuguese Guinea * Portuguese Timor * Queen Maud Land * Reunion * Ross Dep. * Ryukyu Is. * St. Helena * St. Pierre and Miquelon * Samoa (American) * Sao Tome and Principe Is. * Seychelles * Spanish Sahara * St. Christopher * Kitts-Nevis-Anguilla * St. Lucia * St. Vincent * Surinam * Svalbard * Tokelau Is. * Trust Territory of the Pacific Is. * Turks and Caicos Is. * Virgin Is. * Wake Is. * Wallis and Fatuna Is.

HEADS OF STATES 249-252

(A-Z) Afghanistan Zambia

the State with a Smile
TAMIL NADU

The traditional smile of welcome for the visitor The smile that is part and parcel of this sunny land of towering temples, winding rivers lush green fields and live beaches This is the land of Sun and smiles!

Tamil Nadu welcomes visitors all the year round The land of classical Bharatha Natyam the Nadaswaram, Veena Violin Kummi and Kolattam. Rich with traditional arts and crafts. Sublime with the unspoilt charm of the countryside See the heart of Tamil Nadu in the smile of the Tamilian Farmer!

Come share the festivals holidays, celebrations and merry making.

Ever since the days of the ancient Tamil monarchs, hospitality has been the Tamilian's glorious tradition Enjoy the eyecatching architecture, sculptures and the soul stirring songs and music

Its culture quite distinct and temples very Dravidian its language the most ancient Tamil Nadu beckons you to enjoy its rich heritage!

Miles and miles of friendly smiles awaiting you! VISIT TAMIL NADU

Director of Tourism
Govt. of Tamil Nadu, Madras 600009 South India

Part III INDIA 253-615

THE COUNTRY 255

Geological Structure

PHYSIOGRAPHY 256-258

Mountain System * River System * Himalayan System.

FLORA AND FAUNA 258-260

Flora * Fauna * Reptiles * Birds.

CLIMATE AND RAINFALL 260-261

Temperature * Seasons * Rainfall * Monsoons.

THE PEOPLE 262-263

Pre-historic Inhabitants * Early Inhabitants * Ethnic Groups * Negritos * Proto-Austrialoids * Dravidians * Mongoloids * Nordic Aryans.

POPULATION 264-270

Density and Growth Rate * Sex Ratio * Literacy * Population 1971 * Cities with Population of one million and above.

RELIGIONS OF INDIA 270-276

Hinduism * National Religions * Major Religious Communities * Religion–Sex Ratio * Distribution.

LANGUAGES OF INDIA 277-284

Mother Tongues * Linguistic Groups * Indo Aryan * Dravidian * Austro-Asiatic * Sino-Tibetan * 1971 Census * National Languages * Assamese * Bengali * Gujarati * Hindi * Kannada * Kashmiri * Malayalam * Marathi * Oriya * Punjabi * Sanskrit * Sindhi * Tamil * Telegu * Urdu * Official Languages.

LANDMARKS OF INDIAN HISTORY 285-287

BC 4000-1950 AD.

CONSTITUTION AND GOVERNMENT 287-293

The Making of the Constitution * Fundamental Rights * Directive Principles * The Union * The Parliament * Supreme Court * State Governments * Union Territories * Schedules to the Constitution—First Schedule . . . Ninth Schedule * States and Territories * Higher Judicial Tribunals (Supreme Court and High Courts).

CONSTITUTIONAL AMENDMENTS 294-299

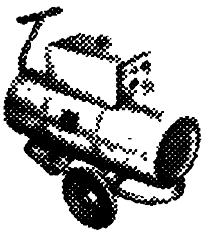
Amending Powers—The first Amendment . . . Thirty-sixth Amendment.

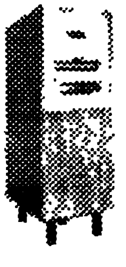
excellence
our way of life

Excellence At Advani Oerlikon, the word is not just an abstract thought It is a living reality The urge to excel is our foundation and our motivation To us, excellence means more than a business philosophy. It means a way of life
Over the years, we have learnt that there is no short cut to excellence The road is long and tedious But, if a thing is worth doing, it is worth doing well. So we have walked the road to excellence And it has taken us a long way All the way to the top
For instance, in the 23 years since we founded Advani-Oerlikon, we have grown into a vast national complex with factories, research and development facilities, services and training centres located in major cities all over India Through our advancement of maintenance and repair welding techniques, thousands of welders have been trained in modern welding practises As the leaders in our field we have sparked the growth of the welding maintenance and repair industry and have led the way in welding technology that has saved Indian industry countless rupees and numberless shutdown hours on valuable equipment
And, as we have grown familiar with the word excellence, we have acquired a familiarity with all its many aspects as well Here is what excellence means to us today,

EXCELLENCE IS QUALITY

In the pursuit of excellence, we have learnt to be meticulous in everything we do. Thus, at every stage of manufacture, every product is checked and rechecked for performance





EXCELLENCE IS DIVERSITY

From excellence in welding, we have branched out to excellence in other fields, too Today, we excel in such diverse fields as electronic control systems, power control, power distribution, arc carbons and more In future, we plan on making Tubular Electrodes for use in semi-automatic and fully automatic welding processes, as well as harnessing the Laser Beam for industrial use

EXCELLENCE IS MODERNITY

In a constantly changing field like welding, the urge to excel becomes a true challenge For, we have to think of trends in welding several years ahead and then start translating those trends into products techniques and processes to suit the needs of tomorrow
Thus to us, excellence has come to mean more than the making of electrodes and equipment. It is a full-time job in the pursuit of perfection This is excellence, as we understand and practice This is what has made us welders to the Nation

OUR RANGE OF PRODUCTS

Welding Consumables and Equipment ■ Power Control Equipment ■ Power & Distribution Transformers ■ Electronic Control Equipment ■ Photocopiers & Carbon Products ■ Injection Moulded Plastic Products.

OUR SERVICES

Advice on welding problems ■ Radiographic inspection ■ Preheat and post-heat Treatment ■ Training of customer's staff at Company's welding schools ■ Specialised ship repair service ■ Agency services

EXPORT HOUSE

A recognised Export House since 1971, we are now an Eligible Export House exporting our products and those of our associates and small scale industries to various markets abroad.

ADOR CONSULTANTS

This is a branch of Advani Oerlikon providing "in house" consultancy as well as services to outside parties whenever the need arises.

ADVANI-OERLIKON
WELDERS TO THE NATION

ADVANI-OERLIKON PRIVATE LIMITED

Regd Office Radio House 6 Rampart Row, Bombay 400001
Area Offices Bombay Calcutta New Delhi, Raipur, Madras.
Plants Bombay, Poona Raipur Madras, Visakhapatnam.

heros' AO-160A

POLITICAL PARTIES 299-304

Pre-Independence Parties * New Parties * Splits and Mergers * National and State Parties * Major Parties * National Parties * State Parties.

ELECTIONS 304-308

Electoral System * General Elections * Lok Sabha Elections * State Elections * 1972 Elections.

NATIONAL ECONOMY 309-313

Rising Prices * Money Supply * The Economic Survey * Inflation * Production * Anti-Inflationary Steps * Stagflation * Wholesale Prices.

DEFENCE 314-316

Administration * Army * Navy * Air Force * Training Institutions * Auxiliary Forces.

PLANNING 317-321

Planning Commission * First Plan * . . . Fifth Plan * Private Sector * Annual Plan 1974-75.

PUBLIC FINANCE 322-328

Central Budget * Budget 1974-75 * Deficit Budgeting *

Supplementary Budget * State Budgets * Public Debts.

BANKING AND CREDIT 329-338

Indigenous Banking * Commercial Banking * Nationalisation of Banks * Foreign Banks * Central Banking * Reserve Bank * State Bank of India * Development Banking.

CURRENCY AND EXCHANGE 338-341

Indian Currency * Foreign Exchange * Sterling Floats * Foreign Exchange Rates.

LAND POLICY 341-345

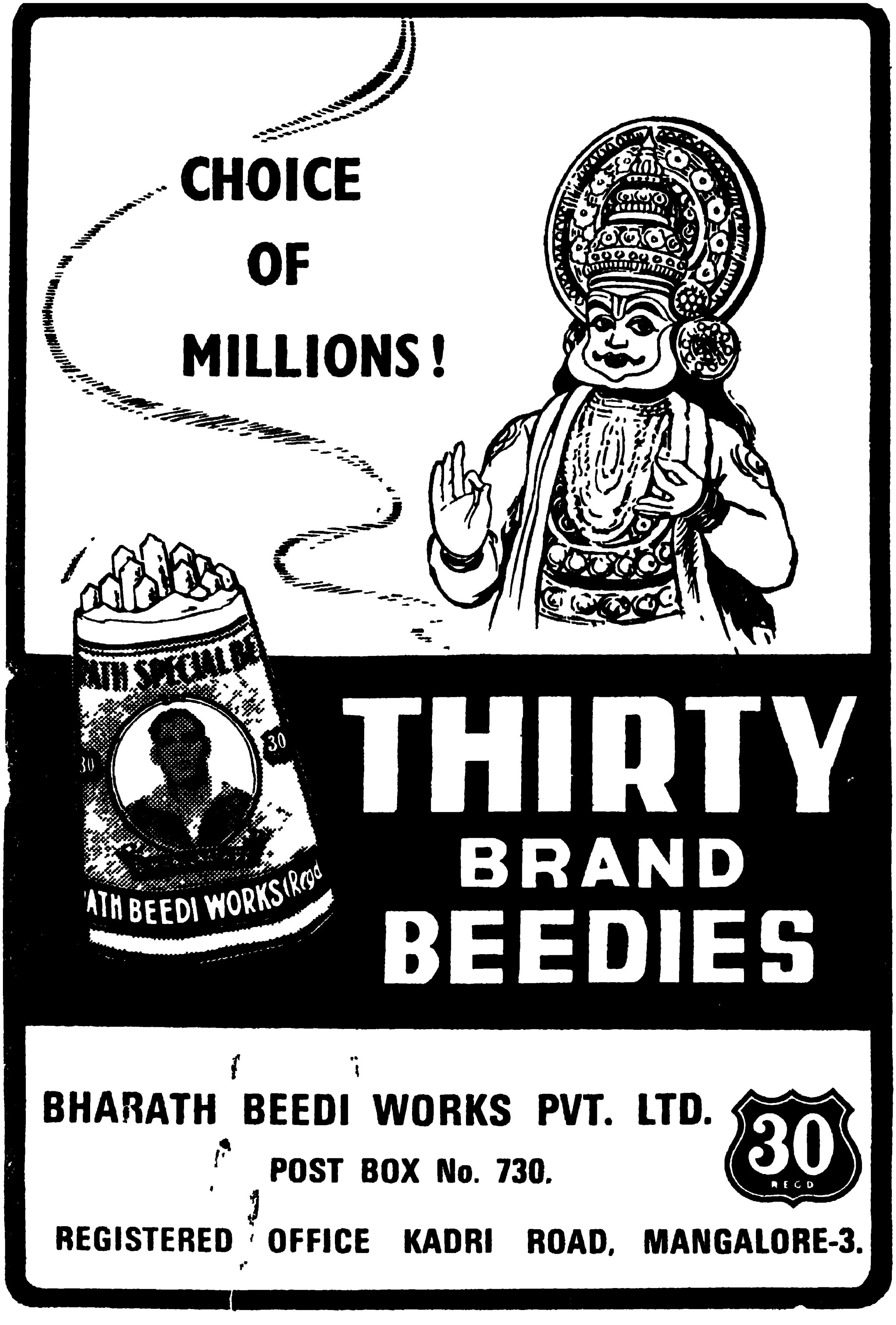
Land Problem * Social Aspects * Ceilings * Land Holdings.

THE FOOD PROBLEM 345-348

Food Production * Green Revolution * Prices 1973, 74 * Food Imports * Exports.

AGRICULTURE 349-352

Commercial Crops * Crops and Seasons * Food Crops * Plantation Crops.



THIRTY
BRAND
BEEDIES

BHARATH BEEDI WORKS PVT. LTD.
POST BOX No. 730.
REGISTERED OFFICE KADRI ROAD, MANGALORE-3.

30
REGD

IRRIGATION 352-354

Planned Irrigation * Irrigation Potential * Outlay and Returns * National Water Grid.

ANIMAL HUSBANDRY 354-357

Cattle * Poultry * Milk Plants * Operation Flood Project.

FORESTRY 358-361

National Forest Policy * Distribution * Classification * Forest Wealth.

FISHERIES 361-363

Fish Catch * Marine Fisheries * Overfishing * Inland Fisheries.

POWER 363-367

Sources * Hydro Power * Thermal Plant * Rural Electrification * Atomic Power.

MINERALS AND METALS 368-370

Wide Range * Minerals * Exports and Imports * Mineral Production * Metals Production.

INDUSTRIAL POLICY 371-372

Mixed Economy 1948 * Mixed-up Economy 1956 * Issue of Licenses.

INDUSTRIAL DEVELOPMENT 373-375

Modern Industry * Nationalisation * Benevolent Socialism * Industrial Production.

THE PUBLIC SECTOR 376-378

Constituents * Growth * Profits or Losses * Industrial undertakings.

THE PRIVATE SECTOR 379-380

Indian Companies (Amendment Act) 1969, 1972 * Large Companies in Private Sector.

THE SMALL SCALE SECTOR 381-383

Cottage Industries * Growth * Industrial Estates * Industrial Co-operatives * Coir Industry.

CO-OPERATION 384-387

Co-operative Credit Societies * Agricultural Credit Societies * Marketing Operations * Department Stores.

TRADE 388-390

Inland Trade * Foreign Trade * Import Policy (1974-75).

worth
it's wait
in wood

Mohmeaks

Golden
Oak

20 YEARS AGED BLENDED
SUPER DELUXE MALT WHISKY

Mohmeaks SINCE 18

MOHAN MEAKIN BREWERIES LIMITED.

RAILWAYS 391-395

The Railway System * Evolution * Partition * Zones * Administration * Budget * Drawbacks.

ROADS AND WATERWAYS 395-399

Road Transport * Growth of Roads * Nationalisation of Transport * National High Ways * Inland Waterways.

SHIPPING AND AVIATION 399-405

Shipping * Ship Building * Hindustan Shipyard * Cochin Shipyard * Major Ports * Aviation * International Airports * Air India * Indian Air Lines.

POSTS AND TELEGRAPHS 406-409

Growth * Postal Service * Pin Code * Telecommunications * Telephones * Overseas * Satellite Communication System.

BROADCASTING AND TELEVISION 409-411

Broadcasting * Air * Vividh Bharati * Television.

THE SCREEN 411-413

Advent of Cinema * Feature Films * Documentaries and Newsreels.

THE PRESS 413-417

Beginnings of Modern Journalism * Freedom of the Press * Oldest Newspapers * Circulation * The Manorama.

LABOUR AND EMPLOYMENT 418-422

Working Population * Unemployment * Employment Exchanges * Trade Unions.

NATIONAL REGALIA 422

National Emblem * National Flag * National Anthem * National Calendar.

EDUCATION AND RESEARCH 423-425

Education and Literacy * School Education * Higher Education * Technology * Research.

HEALTH AND SOCIAL WELFARE 425-429

Medical Systems * Medical Organisations * National Health Programmes * Malnutrition * Social Welfare * Family Planning.

BACKWARD CLASSES 429-431

Harijans * Girijans * SC and ST * Constitutional Rights * Backward Classes.

where Agriculture, Industry and Trade get a helping hand...
STATE BANK OF INDIA

Central Office:
Backbay Reclamation, Bombay 400 020.

International Division:
Backbay Reclamation, Bombay 400 020.

Local Head Offices:
Calcutta, Bombay, Madras,
New Delhi, Kanpur, Ahmedabad, Hyderabad,
Patna, Bhopal.

Foreign Offices:
London: 14/18 Gresham Street,
London E.C. 2P 2JP.

Clarendon House,
10/12 Clifford Street, London W1.

King's House, The Green, Southall
Middlesex, London.

Colombo: 16 Prince Street, Colombo 1.

New York: 460 Park Avenue,
New York, N.Y. 10022.

Malé: Malé, Republic of Maldives

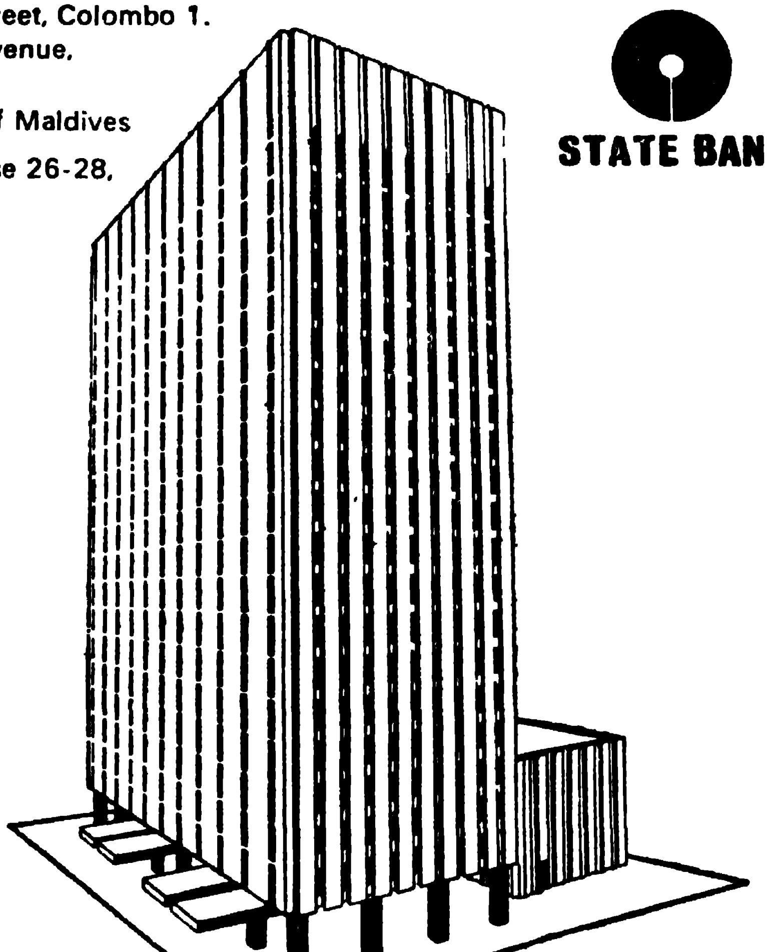
Frankfurt: Goethestrasse 26-28,
6 Frankfurt (Main).

Representative Offices:
Frankfurt: Goethestrasse 26-28,
6 Frankfurt (Main).

Beirut: 5th Floor, Arab Bank Building,
El-Solh Street, P.O. Box 7252.
Beirut.

Correspondents world-wide.

Subsidiaries:
State Bank of Bikaner & Jaipur
State Bank of Hyderabad
State Bank of Indore
State Bank of Mysore
State Bank of Patiala
State Bank of Saurashtra
State Bank of Travancore



STATE BANK

AIYARS. S. 225 REV.4

WILD LIFE 431-433

Extinct Species * Vanishing Species * Tiger * Wild Life Sanctuaries.

TOURISM 434-436

By-passing India * Tourist Centres * Tourist Arrivals.

STATES OF THE UNION 437-551

ANDHRA PRADESH 437-448

Physiography * History * Formation * Mulki Problem * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Power * Industrial Production * Literacy and Education * Newspapers * Public Health * Tourism.

ASSAM 449-456

Physiography * History * N.E. Areas (Reorganisation) Act 1971 * Administration * Economic Structure * Agricultural Crops * Irrigation * Animal Husbandry * Forests * Power * Literacy and Education * Newspapers * Minerals * Industries.

BIHAR 456-460

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Livestock * Forests * Minerals * Power * Industries * Literacy and Education * Newspapers * Tourism.

GUJARAT 461-466

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Industry * Power * Literacy and Education * Newspapers * Tourism.

HARYANA 466-469

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Industries * Literacy and Education * Forests * Minerals * Power * Newspapers * Tourism.

HIMACHAL PRADESH 470-473

Physiography * Formation * Administration * Economic Structure * Agriculture * Animal Husbandry * Forests * Minerals * Power * Industries * Literacy and Education * Tourism.

JAMMU AND KASHMIR 473-478

Physiography * History * Kashmir and the Indian Union * Administration * Economic Structure * Agriculture *

Cable: INDEVCORP
Telex: BG. 315

Telephone: 28177
28609

WELCOME TO ENTREPRENEURS
PLANNING FOR A NEW INDUSTRY?

COME TO
KARNATAKA & KSIIDC

ESTABLISHED BY THE GOVERNMENT OF KARNATAKA WITH THE EXPRESS PURPOSE OF WELCOMING INDUSTRIES TO KARNATAKA. KSIIDC WILL HELP YOU BY DIRECTLY PROMOTING YOUR INDUSTRY, BY PARTICIPATING IN YOUR SHARE CAPITAL IF NECESSARY AND BY UNDERWRITING NEW ISSUES OF SHARES. LET KSIIDC GET YOUR PROJECT REPORTS, FEASIBILITY STUDIES, PROJECT SITES AND INDUSTRIAL LICENCES AND POSSIBLE CONCESSIONS ON WATER, POWER TAXES etc.

WRITE FOR OUR DETAILED FOLDER
OR
CONTACT PERSONALLY

KARNATAKA STATE INDUSTRIAL INVESTMENT
& DEVELOPMENT CORPORATION LIMITED
"HARI NIVAS" 36, CUNNINGHAM ROAD,
BANGALORE-52

Irrigation * Animal Husbandry * Forestry * Minerals * Power * Industry * Literacy and Education * Newspapers * Tourism.

KARNATAKA 479-485

Physiography * History * Administration * Economic Structure * Major Crops * Irrigation * Animal Husbandry * Forests * Fisheries * Sericulture * Minerals * Industries * Power * Literacy and Education * Newspapers * Tourism.

KERALA 485-494

Physiography * Formation * Administration * Economic Structure * Agriculture * Plantations * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Power * Industry and Mining * Coir * Cashewnut * Literacy and Education * Newspapers * Tourism.

MADHYA PRADESH 494-499

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Minerals * Power * Industry * Literacy and Education * Newspapers * Tourism.

MAHARASHTRA 499-505

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Power * Industry * Literacy and Education * Newspapers * Tourism.

MANIPUR 506-509

Physiography * Historical Background * Administration * Economic Structure * Agriculture * Animal Husbandry * Forests * Fisheries * Literacy and Education * Power * Industry * Public Health.

MEGHALAYA 509-511

Physiography * The People * Administration * Economic Structure * Agriculture * Animal Husbandry * Forests * Minerals * Power * Literacy and Education * Tourism.

NAGALAND 512-514

Physiography * Formation * Administration * Economic Structure * Agriculture * Animal Husbandry * Forests * Power * Industry * Literacy and Education.

IOL technology takes us on to tomorrow.

Many years ago IOL pioneered the manufacture of oxygen and other gases in India. The technology associated with their use has ushered in a revolution for many industries

As world technology developed, IOL kept pace. Advanced welding techniques such as submerged arc welding, TIG and MIG welding and the necessary equipment. Sophisticated cutting machines such as the solid state control gas cutting machine. Electrodes for welding thick armour plates and stainless steel, tubular hard facing electrodes for prolonging the life of machinery. Complete pipeline systems for the distribution of gases. And then, entire gas plants and cryogenic equipment All these and many more IOL has introduced into the country. And on the way are others. Fully automatic welding machines, more versatile cutting machines. Gases of extra high purity. Additions to the range of electrodes

In fields as diverse as steel-making and food preservation, metal joining and fertilisers electronics and anaesthesia, space rocketry and pollution control—IOL is working today to develop the technologies the country will need tomorrow

IOL
is technology

IOL
Indian Oxygen Limited

IOC-326

ORISSA 514-519

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Forests * Minerals * Power * Industries * Literacy and Education * Newspapers * Tourism.

PUNJAB 519-523

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation Projects * Industry * Animal Husbandry * Forests * Power * Literacy and Education * Newspapers * Tourism.

RAJASTHAN 523-528

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Industry * Literacy and Education * Minerals * Power * Newspapers * Tourism.

TAMIL NADU 528-536

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Power * Industry * Literacy and Education * Newspapers * Tourism.

TRIPURA 536-538

Physiography * Formation * Administration * Economic Structure * Agriculture * Forests * Industry * Literacy and Education * Newspapers.

UTTAR PRADESH 539-546

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Power * Industries * Literacy and Education * Newspapers * Tourism.

WEST BENGAL 546-551

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Animal Husbandry * Forests * Fisheries * Minerals * Power * Industry * Literacy and Education * Newspapers * Tourism.

UNION TERRITORIES 551-572

ANDAMAN AND NICOBAR ISLANDS 552-553

The People * Administration * Economic Structure * Animal Husbandry * Forests * Fishery * Power * Industry * Literacy and Education.

**Buy only
what you must**

SAVE IN

**NATIONAL
SAVINGS**

*NATIONAL
SAVINGS ORGANISATION*

davp 74/213

ARUNACHAL PRADESH 553-554

The People * Administration * Agriculture * Power * Industry * Literacy and Education * Public Health.

CHANDIGARH 555-556

Administration * Census 1971 * Industry * Education * Health.

DADRA AND NAGAR HAVELI 557-558

Administration * Economic Structure * Agriculture * Forest * Animal Husbandry * Industries * Communications * Power * Irrigation * Public Health * Education.

DELHI 558-561

History * Administration * Economic Structure * Agriculture * Animal Husbandry * Power * Industry * Transport and Communication * P & T Facilities * Literacy and Education * Newspapers.

GOA, DAMAN AND DIU 561-566

Physiography * History * Administration * Economic Structure * Agriculture * Irrigation * Forests * Fisheries * Minerals * Power * Major Industries * Literacy and Education * Newspapers * Tourism.

LAKSHADWEEP 566-568

History * Administration * Agriculture * Co-operation * Power * Industry * Education * Health * Transport and Communications * Harbour Facilities.

MIZORAM 568-570

Physiography * History * Administration * Economic Structure * Agriculture * Forests * Power * Industry * Education.

PONDICHERRY 570-572

Historical Background * Administration * Economic Structure Agriculture * Animal Husbandry * Fisheries * Power * Industry * Literacy and Education.

ADMINISTRATIVE PERSONNEL 573-597

President * Vice-President * Members of the Cabinet * Ministers of State * Deputy Ministers * Defence Services * Supreme Court * Officers of the Lok Sabha * State-wise List of Members of Lok Sabha * Officers of the Rajya Sabha * State-wise List of Members of Rajya Sabha.

For your requirements write to:

MADAN-MITHRA AUSHADHALAYA (Regd.)

POST BOX 44, PALGHAT (KERALA)

MADAN-MITHRA'S POWER MALT

To all who have need of new health, strength and vitality; for the proper development of a healthy body and its normal functioning.

Madan-Mithra is widely used throughout the entire length and breadth of Bharat gives radiance, increase in strength and weight to millions of men and women who have been emaciated, run down, who have lost colour and complexion, who suffer general weakness. deficiency, malnutrition, exhaustion, with dark sunken eyes, reduced to skin and bone by natural causes or disease or ill-health.

Madan-Mithra gives new strength and energy to the whole system.

Madan-Mithra restores lost manhood, increases physical and mental ability utility and vitality, helps lean and emaciated body recover its natural glow and colour. By supplying the essential materials for building and replacement of body cells increases manhood, restores lost vitality, prevents premature ageing, cures bloodlessness, anaemia, sexual impotence, weakness, indiscretions of youth, frequent involuntary loss of semen and restores conjugal happiness and pleasure. Madan-Mithra banishes depression, eases nervous tension, Madan-Mithra is a panacea for all ills–weakness, anaemia, indigestion, loss of appetite, constipation, hyper-acidity, growing lean in spite of nutritious food, run down conditions etc , feeling weak and fatigued at slightest exertion, palpitation, pain in stomach, loss of strength, urinary disorders· bronchial ailments shooting pain all over the body, sleeplessness, seminal discharges, etc.

Madan-Mithra stimulates appetite, increases stamina.

People who value life the world over take Madan-Mithra to live a richer, fuller life with more activity and success.

Madan-Mithra Manufacture: Over 64 rare and costly ayurvedic herbs and roots go into the manufacture as a preventive against disorders and removal of all ailments. To preserve and recoup health the best nutrients like Almonds, Musk, Kanmadam, Salamisri, Ashtavarga, Dasamul, Makaradwaja, Pushkaramul, prepared in Sastric form and principles plus rich minerals, and rare herbs. It is very palatable. No dietary observances.

Madan-Mithra is free from animal fat or intoxicants. Exercise is not compulsory when taking Madan-Mithra.

N. B. Taken regularly Madan-Mithra helps to give extra energy to young and old alike—gradually gives radiance to the body, incresaes weight and strength.

450 Grms for use 40 times Rs. 15

V· P. P. Charge Rs. 5

DIPLOMATIC PERSONNEL 599 615

Indian Embassies Abroad (as on 31-12-74)*Ambassadors * High Commissions * Special Missions * Commissions * Consulates General and Consulates * Heads of Foreign Missions in New Delhi * Consular Offices * Foreign Trade Commissions in India.

Part IV SPORTS AND GAMES 617-689

OLYMPIC GAMES 619-631

The Greek Olympiad * Modern Olympics * Olympic Heros * Dates and Sites—Summer Olympice, Winter Olympics * Munich Olympics 1972 * Medals Tally * Results.

COMMONWEALTH GAMES (10th Meet) 631-637

Medals Tally * Score Board.

ASIAN GAMES (7th Meet) 637-639

Medals Tally.

NATIONAL ATHLETICS 639-649

13th National Athletic Championships, Hyderabad, Jan 1975 * 12th Inter-State Athletic Meet * Inter-Varsity Athletics 34th and 35th Meet.

NATIONAL CYCLE CHAMPIONSHIP 649

BOAT RACE 649-651

The Chundan * Nehru Boat Race.

CRICKET 651-657

International Cricket * The Ashes * Australia—New Zealand * Highlights * India—M.C.C. Matches * All India School Cricket * Women's Cricket * National Cricket Championship.

HOCKEY 659-661

Olympic Hockey * World Cup * National Hockey * Women's World Hockey Cup * Inter University Hockey.

FOOTBALL (SOCCER) 661-665

World Cup * Olympic Soccer * Asian Youth Football (11th Meet) * National Football * All India Intervarsity * Kerala Football Association.

TENNIS 665-673

The Grand Prix * Prize Money * Points * Davis Cup * Eastern Zone Finals * Wimbledon 1974 * Wimbledon Champions * Federation Cup.

We enjoy carrying our biggest load: People's trust

And we carry it proudly, confidently

After all we have a 60 years long tradition of service which keeps us on the go!

So customers with small parcels or bulk loads expect the best out of us. Because they know that

- All our lorries are our own [illegible] so no waiting
- Our large number of trucks carry extra loads [illegible] no waiting
- Our workshops on the way do any necessary repairs immediately so no hold ups
- Our Point to Point service means no reloading on the way so no delays and no damage to parcels
- Our Express Services between major Southern towns save so much of time too

YOU CAN TRUST TVS

SOUTHERN ROADWAYS PRIVATE LTD.

[illegible]

Madurai

BADMINTON (SHUTTLE) 673

Thomas Cup * All England Championship.

BALL BADMINTON 673-675

National Ball Badminton * Uber Cup.

BASKET BALL 675-677

International * National Basket Ball * Nehru Gold Cup * World Basket Ball.

VOLLEY BALL 677

National Volley Ball * Inter-University.

TABLE TENNIS 679-681

Swaythling Cup * Corbillon Cup * Asian Table Tennis Union Championship * European Table Tennis * National Table Tennis.

BILLIARDS 683

World Amateur Billiards * National Championship.

SNOOKER 683

World Open Snooker Championship * National Championship.

CHESS 683-687

International * World Chess Champions * National Chess * Chess Olympiad * Chess Grand Prix * Kidson Rolling Trophy.

BRIDGE 689

World Bridge Championship * National Bridge.

BOXING 689

Part V GENERAL INFORMATION 690-778

NUMERALS 691

Arabic Numerals * Roman Numerals.

ABBREVIATIONS 692-703

Latinisms*Initialisms and Acronyms.

THE SUPERLATIVES 704-707

Natural Phenomena * Man-made Structures * Worst Disasters.

HISTORY 707-731

Major events of History * Early Kingdoms (3000 BC-1000 BC) * The Old Order Changeth (1000 BC—AD 1) *

Bismi®

PENS
BALLPENS
REFILLS

SYED AGENCIES. BROADWAY LANE, ERNAKULAM

For reliable and quality Mild Steel Round Bars for your constructions, please ask for "TSRM" products from your nearest stockists or contact:

Commercial Manager
Trichy Steel Rolling Mills Limited
Senthannipuram
TIRUCHIRAPLLI - 4
(Tamil Nadu)

We have dealers all over Tamil Nadu, Kerala and Bangalore–Mysore areas.

We also manufacture Cold Twisted Deformed Bars to the ISI specification IS-1786 in the trade name "Grip Bars"
Exporters of Mild Steel Reinforcing Round Bars to Ceylon, South East Asia and Middle East Countries

Post Box No. 702
Telex No. 045-204

Grams: ROLMILL

Phone: Office & Works } 5301 (4 lines)

Regd. Office: **T.V.S. Building, West Veli Street, Madurai-1**
Phone: 24385.

Roman Empire and Christianity (AD 1-476 * Rise of Islam (476-840) * Rise of Nation States (840-1485) * Colonisation (1485-1787) * France (1787-1815) * British Empire (1815-1914) * World Wars (1914-1945) * New States (1945-1970) * Important People.

WEIGHTS AND MEASURES 732-737

Imperial System * Metric System * Simple Conversion Table (Indian Units) * Double Conversion Tables * International System of Units * Temperature * Temperature Conversion Table * Standard Time.

SCIENCE 738-760

Primitive Science * Modern Science * Authors and Treatises (1000 BC—1970 AD) * Inventions/Discoveries, Inventors/Discoverers * Elements and Discoveries * Milestones of Medicine * Ancient Medical Systems * Egyptian * Chinese * Graeco-Roman * Arab * Unani * Indian * Western * Ancient Medicine * Mediaeval * Modern * Dietectics * Vitamins at a Glance * Major Elements * Minor Elements * Nutrient Value of Food stuffs.

AWARDS 760-767

Nobel Prizes * Nobel Awards 1973 * National Awards * Arjuna Awards * Magsaysay Award * Nehru Award * Film Awards 1973.

UNIVERSITIES IN INDIA, STATE-WISE 768-769

Universities * Institutions deemed to be Universities

SOBRIQUETS 770-771

ANIMAL WORLD 771-772

Life Span * Comparative Speeds.

THE WONDERS OF THE WORLD 772-774

Seven Wonders * Other Wonders * Taj Mahal.

LOOKING BACK 1974 775-778

India * World.

SPECIAL FEATURE 778

MALTHUSIAN COILS OR THE PROBLEM OF POPULATION 778

Malthus * World Population Problem * Population and Food * Family Planning * The Crux of the Problem.

Table A (Population by Country and Continent)
Table B (United Nations Members Dateor Membership, Area and Population)

phone:
Office : 75735
Agency : 72006
Res : 72834

Grams:
'Naikson'

VENKATESH NAIK MOHANDAS

Sri "Venkatesh" Palayam Road, CALICUT-1.

Authorised Dealers for:

- * CHANDAN STEEL FURNITURE.
- * CHALLENGE FOLDING FURNITURE.
- * TRIGON SLOTTED ANGLES.
- * VAULTEX LOCKS.
- * 22 cts. GUARANTEED GOLD ORNAMENTS.

Sole Selling Agents for Kerala & S. Kanara

E. C. I. E. ALUMINIUM ALLOY ANODIZED HARDWARE
& AGRICULTURAL FITTINGS.

a replica of royal splendour.

Hyderabad. An enchanting city With a fabulous tradition. A place that stands for its age-old hospitality. You'd get a glimpse of this at Hotel **Nagarjuna**. **Nagarjuna** gets the royal splendour of Hyderabad right into your midst.

Luxurious air-conditioned rooms and suites. Soothing channel music. A fabulous restaurant — the **GULMOHAR**. A chic roof-top bar — the **EMERALD**. And many more novelties make Nagarjuna Hyderabad's newest pride.

HOTEL
NAGARJUNA
Bashirbagh,
Hyderabad.
Telephone: 37201
Grams: MAGNIFIQUE.

Hyderabad Hospitality — the way of life at Nagarjuna.

FROM CANADA TO CANBERRA

her fragrance launched on a hundred ships

INDIAN CARDAMOM

Adds
flavour to food
and
Exchange to Exchequer

India earned Rs. 6.85 crores during 1972-73 and 11.55 crores during 1973-74 by her exports of Cardamom to over 60 nations

Covering

U. S. A., CANADA, U. K., CONTINENT,
U. S, S. R., MIDDLE EAST & FAR EAST

CARDAMOM

Mixes with Coffee in Middle East
Entertains with meat and bread in Europe
Can twist with tea, lace liquor and
Makes breath a breath-taking sweetness.

Issued by Cardamom Board, Cochin

SIRPUR FOR QUALITY PAPERS

Manufactures of all sorts of paper and paper board

WRITING PAPER	QUALITY PAPERS
PRIRTING PAPER PACKING PAPER BOARDS RAG CONTENTS AND COATED VARIETIES	Airmail, Bible paper, Bank & Bond, Maplitho, Printing, Surface sized Maplitho containing rags, Deluxe azurelaid ledger, Deluxe cartridge & offset, Art & Chromo paper and board delux pulp boards, Black pastel, Unbleached absorbent kraft & kraft etc.

A POWERFUL FLOCCULANT-AID

FLOC-M-100

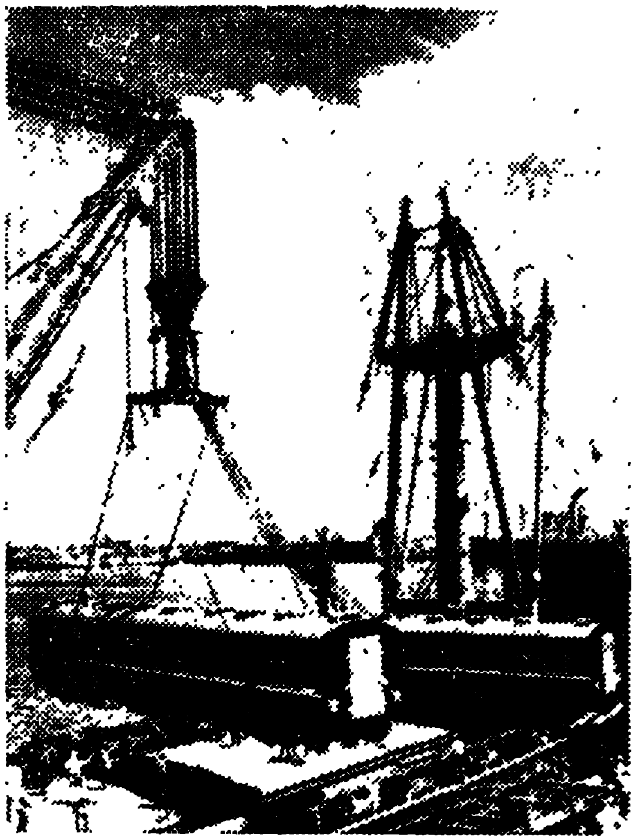
Highly efficacious in clarification of Municipal & Industrial waters, Effluents in breweries, Sugar mills, Paper mills, Water softening plants etc.

Factory at:

THE SIRPUR PAPER MILLS LIMITED.,

SIRPUR - KACHAZNAGAR - 504296 S. C. Rly. (ANDHRA PRADESH)

Grams: "SIRPAPER" Phones: 44, 45, 46 & 76



ICF meets both internal and and international needs!

From humble beginnings 19 years ago, ICF has earned a name for itself in world markets-Burma, Thailand, Taiwan, Zambia, Philippines.

That's only part of the story At home ICF has developed a whole range of coaches to meet our diverse needs--airconditioned cars, dining cars, eletrical multiple units and diesel rail cars--over 10,000 of more than 50 different types

INTEGRAL COACH FACTORY

(Indian Railways) Madras-38. India

They saved the ancient banyan tree and now their daring knows no bounds

'Let it stand,' someone said of the banyan tree as the site was being cleared for the Hindustan Lever Research Centre, at Andheri.

So the tree still stands — and it stands for quite a lot. For one thing, the tree signifies that we can't easily get away from what is home-grown. Appropriately, therefore, the Centre will tackle problems rooted in India — the kind that can only be solved here:

Can we discover and exploit hitherto unused *local* sources of oil, thus cutting imports and saving foreign exchange? Can we develop milk foods that are ideally suited to *Indian* needs? How can we improve the nutritive value of protein-poor foods? Can we develop processes for the preservation of Indian type food dishes?

Research on all this can only begin at home. It has, at the Hindustan Lever Research Centre in Andheri. The sweep and thrust of the studies are daring. The scientists are producing new devices for old, making traditional things happen in new ways.

They have, of course, left the banyan tree alone to grow by itself.

Hindustan Lever

Lintas-HLL. PR. 9A-77

Life is a Cycle

To the majority of India's millions, life is a cycle .. of honest effort and gratifying fulfilment The cycle . . strong, durable, reliable, economical transport on two wheels Bringing them the priceless gift of mobility. Giving them a means to better their lives with Indeed, the cycle is part of their very life.

TI is in the cycle world— in fact, the leader of it. Just as TI leads in the manufacture of cycle accessories, ERW steel tubes, roller chains and metal sections

What we make now The world-famous HERCULES, PHILLIPS and BSA cycles which have set standards of unequalled quality in over 135 countries.

TRU-WEL ERW steel tubes, Brempton cycle fittings, Olympic, Brooks and Hector saddles, Hercules and TI cycle chains and Miller dynamo lighting sets for the cycle industry and trade.

TRU-WEL ERW steel tubing, cold-rolled steel strip, Diamond roller chains for heavy and light engineering industries, and METSEC cold roll-formed metal sections.

TUBE INVESTMENTS OF INDIA LTD., Madras 600001
Proprietors of: TI Cycles of India -
Tube Products of India -
The Wright Saddles of India - TI Metal Sections
Subsidiaries: TI Diamond Chain Limited -
TI Miller Limited

TI 6529

Telephone: 23461
33461

Telegram: CARMATTING

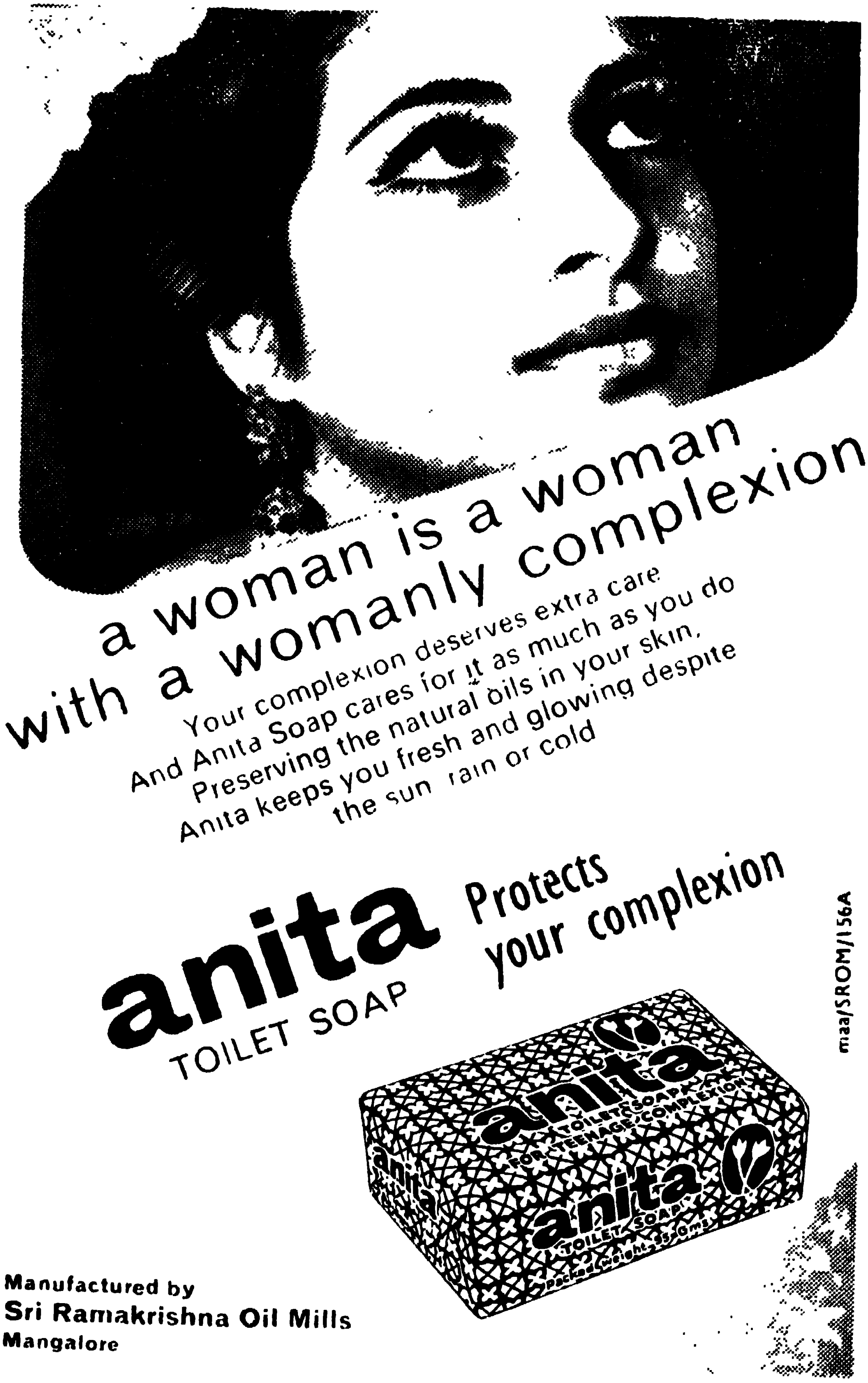
AUTO & MACHINERY EQUIPMENT CO.

KOYA'S BUILDINGS
192–A, DR. NANJAPPA ROAD (JAIL ROAD)
COIMBATORE - 18

Specialists in Car Matting & Upholstery Reading and Reliable Manufacturers of Welded Seat Cushion Covers.

- * Pioneers in the field of Automobile Upholstery Car Matting and renovation of seats still unrivalled.
- * For a large selection of Foam Rexine, Ordinary Rexine in various colour combinations, Foam cushion sheets, rubber and velveteen beading, shaped Scooter and Motor Cycle seats and pinion.
- * Automobile parts, light fittings and bulbs, horns of repute and fancy attachment.

Please Contact us - WE ARE READY TO SERVE YOU



a woman is a woman
with a womanly complexion

Your complexion deserves extra care
And Anita Soap cares for it as much as you do
Preserving the natural oils in your skin,
Anita keeps you fresh and glowing despite
the sun rain or cold

anita Protects
your complexion
TOILET SOAP

maa/SROM/156A

Manufactured by
Sri Ramakrishna Oil Mills
Mangalore

With best compliments from

M/s. JIT SINGH CHANDOK & CO.

MENEZES BRANGANZA ROAD
PANJIM-GOA
Phone No. 2647

Dealers for

CEAT, DUNLOP, FIRESTONE,
GOODYEAR, MANSFIELD
&
PREMIER TYRES

ALONE IN A CROWD?

In a crowd of haves, are you a havenot?
Are you educated but unemployed?
Our Entrepreneur Advisory Service is
your best companion.

We offer . . .

- project identification
- project location
- locating machinery, equipment and material
- arranging infrastructural facilities like power, water, sheds, etc.
- fulfilment of formalities
- personnel recruitment
- raising financial resources
- marketing assistance

We have a hand in solving the unemployment problem.

For details, get in touch with
Entrepreneur Advisory Service
INDIAN BANK
(Wholly owned by the Government of India)
H. O.: 17, North Beach Road, Madras-600 001.

HYDERABAD

The range of power

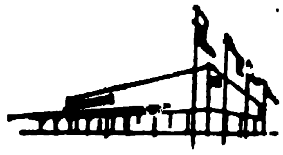
- Steam Turbines & Turbo-Alternators (1.5 MW to 110 MW) for Industries and for Power Generation
- Turbo-blowers and Turbo-compressors
- Pumps
- Minimum Oil Circuit Breakers (25 KV to 132 KV) and Air Blast Circuit Breakers (132 KV to 400 KV)
- Centrifugal Compressors for Fertilizers, Petroleum, Petro-chemical, Chemical, Refrigeration, Steel and other industries

Bharat Heavy Electricals Ltd

(A Government of India Undertaking)

HYDERABAD 500032

India and Germany -- Friends and Partners for Progress



Co-operation across the frontiers helps eradicate illness, starvation and hunger.

Assistance or co-operation? Germany believes in co-operation

All must have a share in progress

THE FEDERAL
REPUBLIC OF GERMANY --
A DEPENDABLE PARTNER

Phone { Office: 2285, 2003
Res: 3709, 3042

Grams. 'RAJEXPORT'

Code: BENTLEY'S 2ND PHRASE
ACME & PRIVATE

RAJMOHAN CASHEWS
PRIVATE LIMITED

◆

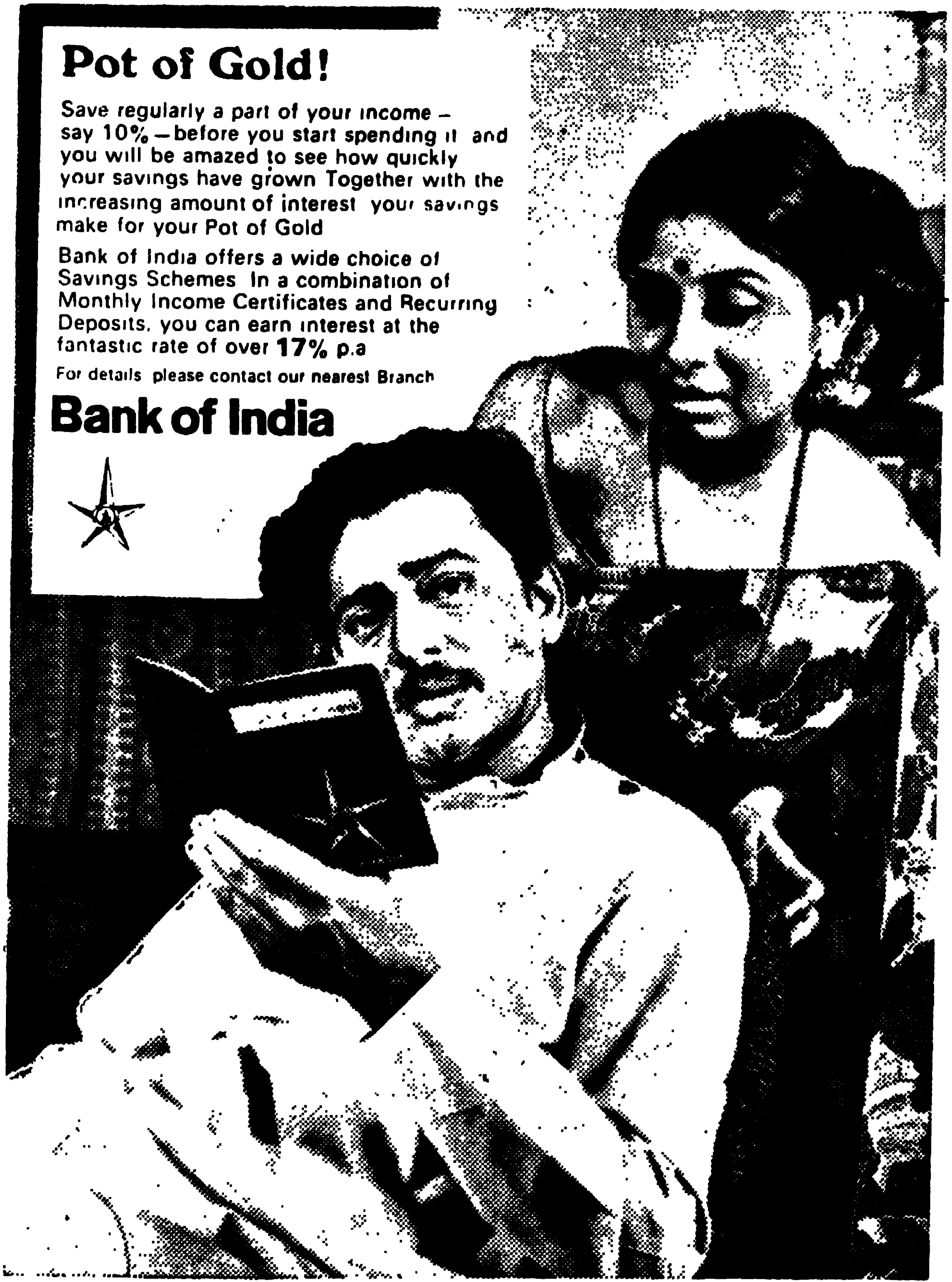
Post Box No. 170

Regd. Office:

E. P. I./96, ERAVIPURAM

VADAKKEVILA P. O.

QUILON-10



Pot of Gold!

Save regularly a part of your income – say 10% – before you start spending it and you will be amazed to see how quickly your savings have grown Together with the increasing amount of interest your savings make for your Pot of Gold

Bank of India offers a wide choice of Savings Schemes In a combination of Monthly Income Certificates and Recurring Deposits, you can earn interest at the fantastic rate of over **17%** p.a

For details please contact our nearest Branch

Bank of India

RAAS/B/DM/0014

HOW TO GET THE HIDDEN TREASURE FROM SOIL

EVERY FARMER'S INTENTION IS TO GET THE MAXIMUM FROM HIS SOIL. TO FULFIL THIS AMBITION HE HAS TO INSIST ON QUALITY FERTILISERS. THE VARIATION IN SOIL FERTILITY IS CREATED ARTIFICIALLY THROUGH THE ADDITION OF VARIOUS RATES OF QUALITY FERTILISERS. SICAF'S NPK MIXTURES, STRAIGHT FERTILISERS, BONEMEAL, COMPLEX MANURE ETC. ARE HIGH YIELDING.

THUS FIND OUT THE TREASURE!

SICAF
CAT BRAND FERTILISERS

SOUTH INDIA CHEMICALS AND FERTILISERS LTD.,
KOTTAYAM, KERALA.
PHONE - 3957 GRAM 'SICAF'

their goal – a self reliant technology

They are dedicated ECIL men, over 4,000 strong. Who pool their resources to develop and make sophisticated electronics for application in a wide variety of fields. Have their efforts paid off?

Judged by results, yes. ECIL's turnover has multiplied 64 times in the last 6 years. Proving that indigenous know-how, if systematically developed, can, indeed go a long way towards the nation's goal of self-reliance.

ECIL—where tomorrow is today.

Electronics Corporation of India Limited
Hyderabad-500 040.

mas. ECIL.4

HIGHCLASS AYURVEDIC PRODUCTS

Manufactured by

RADHAS PACKAGES & CHEMICALS ENTERPRISES (P) Ltd.

Unit: Esmalio Perfumery Enterprises, Ayurvedic Division, Quilon

Why scratch on itches? USE

VANSCAB

and be relieved of your itches.

Get your hair black by using

BRINGAMALAKA OIL

It helps to regain the blackness of your hair, improve your sight and keeps up your memory power.

Keep mosquitos and bugs away with

MOBU

Worrying over Pimples? Then use

PIMCURE

No cure for piles? Try

PILECURE

NEEMACA

Complaints of muscular pain and pain in Joints are common. All such pains could be relieved with the use of NEEMACA.

BRAHMI OIL

The use of the oil will help you to have sound sleep and cool head.

Gastric trouble? It is usual. We have a remedy for it.

REMOGAS

Cough not, my dear! Because

COUGHREE Is here

for colds, cough and congestion of the chest use COUGHREE.

Try

AGADIAB

In cases of mild diabetes.

Rheumatism? Find relief with

AGARUMA

No appetite? Then use

ESMAPETIT

Paining boils and carbuncles vanish with

PIMCURE EXTRA

Sinusitis. No problem when you use

PEENASATHAILAM

Kidney disorders can be relieved with

PISEAS

VILWADILEHYAM

For dysentery and diarrhoea USE

VITON

For Vigor and Vitality

If worms inside your stomach keep you worried, banish them with

ISWORM

ASTHMA? Fight it with

ASTHREL

WE OFFER

RESTO HAIR

Against dandruff, falling of hair and also early baldness

To keep your head clean from lice USE

LOUSE OIL

Sales Depots:- Geetha Nivas Warriam Road, Ernakulam, Cochin.
Radhas Agencies, Main Road, Quilon.
Radhas Agencies, Kottayam.
Srinivas Medicals, Mullakkal, Alleppey.

INDIANOIL SERVICE TO SERVICES

India's Defence Services, no doubt are our valued customers. But we do not look at it that way. As a leading public enterprise, we deem it our prime responsibility and our duty to rally round the Services and help keep round-the-clock vigil across the national frontiers.

Army, Navy or Air Force—Indianoil is there to meet all the requirements of petroleum products conforming to correct specifications wherever they are needed.

The recent Indo-Pakistan hostilities posed a challenge to provide the logistic support Indianoilmen accepted the challenge and met it squarely, irrespective of the odds, risks and costs, thus earning the nation's gratitude for their efforts in war and no less in times of peace.

INDIANOIL

INDIAN OIL
CORPORATION
LIMITED

Dattaram-IOC-45-1

MARCH OF KARNATAKA

Karnataka region, which lay scattered under several administrations, was brought together to form a new State in 1956 and assumed the historic name of Karnataka only a year ago. The State is endowed with rich natural resources. A number of schemes of development have been launched to exploit these resources.

In the field of agricultural productions, the State has been able to double its production, particularly in foodgrains. Similarly, sugar- cane, oil seeds and other agricultural productions have increased. Thanks to the numerous irrigation projects taken up, the total irrigational area has gone up from 7.4 lakh hectares in 1956-57 to 17 lakh hectares in 1973–74.

The State has always been a pioneer in development of power resources. Kalinadi Project, one of the biggest in Asia, has recently been launched. It would add 910 MW by the end of 1978 and double the power output of the State.

In Industry, the State has made noteworthy progress In 1956, only 1,635 factories were working and today, the number has risen to 4,000. Mysore Silk enjoys international reputation and the State produces 80% of Silk in the country. Recent introduction of Bi-Voltine species is going to revolutionise Sericulture Industry in the State.

Expenditure on Social Services account for 30% of the total revenue of the State.

In 1956, only 207 hospitals and dispensaries existed. But to-day, there are as may as 10,500 hospitals and dispensaries.

In recent years, Government have set up various Financial Corporations to obtain and mobilise financial resources to bolster up industries by providing technical and administrative know-how in addition to finances.

Those who have still remained below the poverty line, have not reaped the fruit of development and progress to the extent they should. For achieving this end, it is necessary to undertake effective socio-economic measures. In this direction, the State has already gone ahead. Apart from several new measures for the uplift of backward sections of the society, the State Government has distributed nearly 2,80,000 house-sites among the weaker sections, of which 90,520 have been distributed to Scheduled Castes and Scheduled Tribes.

The Land Reforms Legislation, as recently amended, opens a new era. In fact, it puts an end to the era of land-lordism.

Issued by: ***Director of Information and Publicity***
Govt. of Karnataka.

We make your son a lakhier on a single deposit of Rs. 13,700 only

Do you want to save for any specific purpose like higher education of your children or daughter's wedding?

The ideal form will be to invest now in the Corporation Bank's Balanidhi Cash Certificates in the names of your minor children

These certificates are available in different denominations and carry attractive interest

You will save on taxes too

A special feature of the scheme is that repayment can be arranged in instalments

A sum of Rs 1000 invested now will swell to Rs. 2707 in 10 years and to Rs 7328 in 20 years!

Come, drop in for a chat

You would know how helpful we are

Balanidhi
CASH
CERTIFICATES

Over 150 branches in
Karnataka - Kerala
Andhra Pradesh Tamil Nadu
Gujarat Maharashtra
Bengal Delhi and Goa

– Where friendline

Corporation Bank Limited

Regd Office UDIPI
Administrative Office MANGALORE

NOT TO BE LENT OUT

PART I

SPACE

- SPACE ERA
- SPACE RESEARCH
- MAJOR RESEARCH PROJECTS
- ASTRAL SCIENCES
- ASTROLOGY
- OUTER SPACE
- MODERN ASTRONOMY
- GALAXIES
- THE MILKY WAY
- STARS
- THE MAIN SEQUENCE
- MAGNITUDES
- LIFE OF A STAR
- CONSTELLATIONS
- QUASARS
- THE SUN
- PLANETARY SYSTEMS
- INNER PLANETS
- OUTER PLANETS
- SATELLITES
- THE MOON
- COMETS
- ASTEROIDS
- METEOROIDS
- MANNED FLIGHTS

SPACE ERA

FROM the beginnings of civilisation man has contemplated the universe with wonder and yearning. His inborn spirit of enquiry urged him on an incessant quest of the secrets of the heavens.

The telescope gave us our first glimpse of the seemingly boundless space. As man's understanding of the universe increased, his desire to travel out into the vast unknown grew stronger. But the idea of flying out into space remained an idle dream till 1957.

In 1957—October 4, 1957—Soviet Russia sent the first man-made satellite Sputnik I into orbit. The signals coming from Sputnik I heralded the advent of the space era. In 1958 January 31, 1958—United States followed, launching its first satellite, Explorer I into space. The age of space had opened.

Rocketry. Modern flights into space have been made possible by the science of rocketry. Rocketry was known to man from very early times. It was believed for a long time that China was the home of rocketry. It would now appear that India knew the technique long before China and that China, in fact, learned rocketry from India*. Whatever that may be, the old rockets, whether in India or China were mini sized, almost toy rockets, compared to the modern giants.

It was an Englishman named Congreve who carried the idea of rockets from India to England He began producing rocket missiles in England, by the beginning of the 19th century. Towards the end of the 19th century, European scientists took up the study of rocketry. The Russians led the way.

In 1903, the Russian scientist K. E. Tsiolkovosky, the father of astronautics, expounded the fundnmental principles of rocket flight. In USA, a lone researcher, Dr Goddard initiated advanced theoretical work in 1915 He and his associates launched the world's first liquid propellant rocket in 1926. In 1929 he followed this up by the first instrumented rocket in the world. Its payload consisted of a barometer, a thermometer and a small camera. In 1935, M. K. Tikhonravov, a Russian scientist, launched a rocket carrying a meteorological payload to an altitude of 10 km.

Modern Rockets. It was Nazi Germany, which developed rockets of modern power. The German V-2 rockets were used against Britain during the final stages of the Second World War. The Germans had two rocket centres—a rocket test centre at Peenemunde and a rocket factory in the Harz mountains. When the Allies occupied Germany, Peenemunde fell to the Russians and the Harz mountains to USA.

The Russians dismantled what was left of the Peenemunde works and refitted them up in Russia, with the help of the German technicians, who were available at Peenemunde. Within a year, Soviet Russia had produced a considerably improved V 2 rocket. The plant in the Harz mountains was removed to USA. Though some of the top German scientists like Dr. Wernher von Braun (now Deputy Administrator of NASA) were taken to America, USA did not seriously take up any follow-up work on German rockets.

Real work on rockets began in USA, when President Eisenhower announced on July 29, 1955, that the United States intended to orbit an instrumented satellite for the International Geophysical Year Programme.

The First Satellites

Meanwhile, quite unexpectedly, Soviet Russia stole the thunder. On October 4, 1957, the Russians announced that they had launched Sputnik I into space. Thus Russia earned the historic distinction of being the first nation to send a man-made satellite into orbit. Sputnik I carried a payload of 83 5 kg. Sputnik I was followed by Sputnik II on Nov. 3, 1957. It carried the dog Laika in a hermetically sealed cabin. On January 31, 1958, United States launched its first satellite, Explorer I. Explorer I carried a payload of only 14 kg compared to Sputnik's 83.5 kg. Explorer I was followed by Vanguard I (March 17, 1958) and Explorer III* (March 26, 1958).

---

* See *A History of Space Flights*—Holt, Rinehart & Winston Inc.; New York, 1965.

* Explorer II failed.

Russia launched Sputnik III on May 15, 1958 and USA followed with Explorer IV on July 26, 1958.

In July 1958, USA set up The National Aeronautics and Space Administration (NASA) to co-ordinate its entire space research programme, which until then was shared between the Army, the Navy, and the Air Force, to the utter confusion of all.

On May 25, 1961, President Kennedy announced that USA proposed to land men on the Moon before 1970. Apollo XI launched by USA on July 16, 1969 more than fulfilled Kennedy's hopes It landed two men on the Moon—Neil Armstrong and Edwin Aldrin -at 1 48 a. m (I.S.T.) on July 21, 1969 The landing on the Moon has earned undying fame for USA and the credit of a historic first in space. This spectacular triumph eclipsed the three famous historic firsts that Russia had already scored—the first man-made satellite Sputnik I, the first manned flight of Vostok I ·April 12, 1961, that took Yuri Gagarin into outer space and Vostkod II (March 18) from which Alexei Leonov performed man's first walk in space.

Ultra-violet Radiation

Scientists tell us that the solar ultra-violet radiation is lethal. Millions of years ago, when life organisms first appeared, they were protected by the deep waters of the ocean from being killed off by the Sun's ultra-violet radiation. At that time, life could only survive under water.

But the Sun's ultra-violet radiation, so lethal to life has also provided a protective shield for life. This protective shield is the ozone (O_3) layer in the Mesosphere. Ozone is heavy Oxygen, which contains 3 atoms of oxygen to the molecule. We breathe O_2 which contains only 2 oxygen atoms to the molecule. O_1 is atomic oxygen, the primary oxygen atom. O_3 is formed when solar ultra-violet radiation passes through oxygen. Once O_3 is formed, it has the power to absorb the Sun's ultra-violet radiation. When sunlight passes through the Mesosphere, the O_3 layer filters it and holds back the lethal ultra-violet rays.

Thus it turns out, that the very rays (ultra-violet) which kill life also provide an umbrella of ozone to help life flourish on earth.

SPACE RESEARCH

SPACE exploration has proceeded at a fantastic pace, since Soviet Russia, launched the first man made satellite (Sputnik I) into space in October, 1957. Russia's *Sputnik*, was virtually a slap in the face for U S A, whose scientists were also working on the same programme. However, U S caught up with Russia quickly by sending *Explorer I* into space in January 1958

Thereafter, Soviet Russia and USA seemed to be involved in a race against each other, to secure the leadership in space exploration. This is the main reason, why so many space-crafts of various types were launched one after the other in quick succession Other countries joined the race and contributed their own quotas of space-craft.

A count taken in 1973[*] showed 584 space-craft functioning in the earth's orbit. USA led with 341. Soviet Russia came second with 204. Other countries accounted for a total of 39 space craft as follows: France 9, Canada 6, Britain 5, Japan 4, ESRO 4, West Germany 3, Italy 3, NATO 2, China 2 and Australia 1.

The rest of the space craft sent up had disintegrated—including Sputnik I which plunged to destruction in the earth's atmosphere on Jan 4, 1958, three months after its historic launching. Among the remnants of space craft floating in the earth's orbit were 2,300 objects—used rockets, old heat shields, and other disposable parts of space crafts. Beyond the earth's orbit, in the interplanetary space were another 40 pieces of junk.

The heaviest space traffic in 1973 lay between 100 and 600 miles above the earth. Many of the weather satellites and most of the spy satellites, operate in this orbit. Further out are the communication satellites, which bounce TV and Telephone signals from one point on earth to

---

Tabulation of space craft by *North American Defence Command.*

another. Beyond the earth's orbit, are the planetary satellites, the Soviet Veneras and US Mariners and Pioneers.

This analysis of space-crafts and their remnants in space reveals a baneful aspect of space research. It shows that after having messed up the entire earth with our discards, we have begun to litter space as well. This is not a wholesome development.

Advantages of Space Studies

Space studies are important in many ways. For one thing, space-vehicles give us a clear picture of outer space. Our atmosphere acts as a screen which obstructs and sometime even distorts our views of outer space. This obstructive intervention of the atmosphere can be eliminated, by space-crafts, which soar above our atmosphere Another advantage is that the space vehicles offer us a comprehensive view of our earth—a real bird's eye-view-and also of our atmosphere itself. It is impossible to obtain any such view from any point on earth below the atmosphere A third advantage is the state of weightlessness or a lack of gravity, which is a unique experience for man. On the earth, we cannot escape gravity at any place or at any time. In space, we are totally free of any terrestrial gravitation. A fourth advantage is that space-vehicles provide us a nearly complete vacuum for experiments, which it is very hard to produce on earth.

Methods of Investigation

Various methods are being adopted in space research. 1. *Ground-based Studies.* These are studies made from the earth by optical telescopes, radio telescopes and radar systems. 2. *Orbiters* are space-crafts sent up as satellites of other planets or the moon. They circle these bodies and send down radio reports and photographs. 3. *Flybys* are space-crafts that fly past celestial bodies. As they fly past they send down radio reports. 4. *Atmospheric Probes.* These are carried out by space-craft that fly in the earth's orbit (earth's orbiters). They analyse the conditions in the atmosphere and send down regular reports. 5. *Automatic Sample Returners.* These are space crafts sent up to gather samples from astral bodies and bring them back to earth. Luna 16, for example, brought back samples of lunar soil from the moon 6. *Landers.* These are devices sent up to softland on the surface of planets or the moon and to send down data about the surface conditions. 6 *Rovers.* These are mobile equipment landed on other planets or the moon They move about the surface and make reports. Their movements are controlled from the earth. Lunokhod I is the first rover to be sent up in this manner. 7. *Manned Landings.* These represent the highest achievement of space engineering Apollo 11 is the first successful venture in manned landings.

MAJOR RESEARCH PROJECTS

i) **The Moon.** The first major project of research was studies of the moon All known methods of investigation were applied to the moon. These have been more or less, successfully concluded, at any rate, for the present. (See the Moon).

ii) **Weather Studies** form another important branch of investigation These are being carried out by Weather Satellites, like the Meteor series of Russia and the Nimbus series of US These satellites circle the earth and give us advance warnings of cyclones and storms and provide us with vital meteorological data on a global scale. The studies are being extended by France and Britain joining the scheme with Russia and US.

iii) **Communications.** These are handled by such satellites as the Molniya series of Russia and the Telstar, Symcon, Early Bird, etc. of US. These satellites bounce T. V. and Telephone signals from one point of the earth to another. (See the Atmosphere, infra) They travel at the same speed as that of the earth and are therefore always in the same position in the sky. They transmit telephone talk, telegraphic messages, and television pictures to all parts of the earth It may be noted that before the advent of the satellites, T V pictures could not be transmitted to the opposite side of the earth, because light waves would not bend and pass the Equator.

iv) **Skylabs or Space Stations.** These are fairly big crafts fitted out as laboratories. Accommodation is also provided in the skylabs for astronauts to stay in and carry on experiments Skylabs are versatile things capable of carrying out various objects. They function as astronomical observatories, weather observation centres and research laboratories.

v) **Space Shuttles** are space craft that carry men and cargo to and fro from the earth into space and back.

vi) **Pioneer Project.** Pioneer X was launched on March 3, 1972 and Pioneer XI on April 7, 1973. Pioneer X was sent on its way to the outer planets beginning with Jupiter and further on, perhaps beyond the solar system. Pioneer X reached Jupiter in Dec. 1973.

Pioneer X accelerated its speed by its encounter with Jupiter from 38,000 to 83,500 km. It is expected to reach Saturn's orbit in 1976 and 3 years later, the orbit of Uranus. By 1983 it will cross the orbit of Pluto the outermost planet and thereafter it will pass at a speed of 46,000 km. per hour into inter-steallar space.

Pioneer X has scraped through Jupiter's radiation belt. It was a narrow escape. The charged particles trapped in Jupiter's magnetic field produced a radiation 10,000 to a million times stronger than the earth's. The belt is a flat disc, slightly tilted, with a diameter of about 4 million miles. Pioneer X has sent down an enormous amount of data about Jupiter, with solar photographs of Jupiter, its great red spot and the space around Jupiter. They are being studied. (See Jupiter, infra)

Solar Wind

Pioneer X will also make a study of the solar wind, in conjunction with Pioneer IX (which was launched in November 1968). Pioneer IX is orbiting the Sun at about 0.8 AU from the Sun. Pioneer X is at 2.2 AU. When the two spacecrafts lined up there was a big solar storm-the largest storm ever measured. The space crafts have made a study of this storm. One thing proved by the Pioneer, is that the solar wind does not keep a constant velocity. In fact, it showed down from about 1100 km/sec. at 0.8 AU (Pioneer IX) to 700 km/sec. at 2.2AU (Pioneer X). (See The Sun, infra).

Zodiacal Light

The Zodiacal light is a faint cone of light, which is seen on dark nights after twilight in the evening and before dawn. It is about as bright as the Milky Way. It is brightest towards the Sun and is largely visible along the ecliptic (path of the Sun through the sky) although it is spread over the entire sky. It is supposed to be caused by the scattering of sunlight by inter-planetary dust particles. The phenomenon is being observed by Pioneer 10, from various positions. It is thought that the photographs taken by Pioneer, will clear up the mystery of zodiacal light.

Pioneer XI launched on April 7, 1973 is like Pioneer X, a nuclear-powered craft and in sending down reports regularly. Pioneer XI is expected to fly past Jupiter, at a closer distance (about 35,000 km. from Jupiter, as against 1,40,000 km. distance for Pioneer X) if it is not affected by the radiation belt of Jupiter. If Pioneer XI passes this belt safely, it will fly past Saturn in 1980, and go further out afterwards.

Gegenschein

Gegenschein or counter-glow is a faint luminous zone in the sky, which is seen, in the anti solar point, that is 180° opposite to the Sun. This is considered to be an extension of the Zodiacal light by some and as an atmospheric diffusion by others. It is supposed to be caused by the back-scattering of light by inter-planetary dust particles. Pioneer 11 is observing this phenomenon from space. From the earth, it is studied by the observatory at Hawai. Any definite conclusion regarding this counter-glow can be made only after further observations.

vii) Mariner Mission *

Mariner 9 is the first man-made satellite of another planet. Mariner has already concluded its survey of Mars, but is still orbiting it. It is expected to orbit Mars for another 50—100 years before it spirals into the surface of Mars.

Mariners's survey has revealed that Mars is not a dead planet. It is geologically active. Its surface is covered with huge craters, both meteoritic and volcanic. The erosional features clearly point out the existence of fluid water at one time in the past. How could liquid water exist in large enough quantities to create stream channels on a planet where temperatures are too low to hold any water vapour? Perhaps in the past it had an orbit which made it possible to receive a large amount of solar radiation. Frozen water and carbon dioxide in the north polar cap may have given a dense atmosphere and consequently appreciable amount of rain, if enough heat was available. The present day Martian atmospheric pressure, however, is about a hundredth of the terrestrial one.

Mariner 9 has observed water-ice crystal cloud systems near four large volcanoes. This may be due to the outgassing from the volcanoes; future eruptions in this region may also be possible and are worth monitoring by telescopes. The nature of the surface material as analysed by Mariner suggests that the highlands are composed of a lower-density high silica material and the lowlands of a denser basalt. And, whereas the northern hemisphere of the planet shows signs of intense wind erosion, the southern hemisphere is strewn extensively with old craters denoting a primitive unaltered crust. This again is a curious observation which requires an explanation.

---

* Also See *Mars*, infra.

viii) Viking Mission scheduled for 1975 has a specific object-detection of life on the Martian surface. It is planned to land a Viking on the surface of Mars to carry on investigations.

A number of experiments are designed to test whether life processes operate on the Martian soil One of the methods is to add the soil to a clear solution with nutrients in it. If there are any microscopic organisms which assimilate the nutrients, the medium may become turbid due to their activity. A second experiment uses carbon dioxide with radioactive carbon in it. The soil is kept in an atmosphere of carbon dioxide with some amount of moisture, if needed. If the soil contains biological organisms which can take carbon dioxide, it will become radio active due to the intake of radio-carbon. This can be easily detected using a radiation counter. Of course, if there are bigger forms of life, it will be revealed by close-up photography of the surface.

ix) Venus Studies * The investigations about Venus, were mainly done by the Russian Venus series. Venus 7 and 8 have discovered a curious phenomenon in Venus. Its day and night 'sides have almost the same temperature, though a large variation in temperature, was expected as the rotation period of Venus is more than 200 days. This means something is transporting the heat from the day side to the night side This could possibly be done by strong winds in the high atmosphere. The air near the surface is calmer with a pressure of nearly hunured times that of Earth's atmosphere.

In spite of its being one of the very bright objects in the sky (next only to the Sun and the Moon), the surface of Venus is indeed dark due to the shielding of the solar radiation by thick clouds The surface is however, very hot (470° C) due to a greenhouse effect. An analysis of the surface of Venus using gamma ray spectrometer has shown that it contains natural rodio-active materials like uranium, thorium and potassium-40, in amounts similar to terrestrial granite. The density of Venusian soil (1.5 grams/cc) is found to be similar to the lunar soil

Also, Venus's upper atmosphere lacks free oxygen. The atmosphere of Venus is mainly composed of carbon dioxide. Due to solar ultra-violet radiation, this may be split into carbon monoxide and oxygen; thus one should see an appreciable amount of oxygen in the upper atmosphere because the reaction rate for carbon monoxide and oxygen to recombine to form carbon dioxide is rather small The absence of free oxygen indicates that there must be vertical mixing of the atmosphere which quickly transports the oxygen produced in the top layers to the bottom where it may oxidise some of the constituents of the surface rocks.

Radar echo studies on Venus reveal that it has a relatively smooth surface (in contrast to Mars and Moon which show rugged, cratered and uneven surfaces) The survey mapped a region on the Venusian surface which has an area larger than the continent of Asia, where there is only a small rough region named *Alpha* of about 1,600 km in diameter This indicates that the winds in the lower atmosphere of Venus have a smoothening effect. The stray rugged regions may be due to recent meteoritic impacts. Venus has a bright hydrogen corona. It has no magnetic field and no radiation belts like the Earth's Van Allen Belt

Despite an atmosphere containing mainly CO_2 and a very hot surface, life on Venus could still be possible. It is known that some bacteria containing purple chlorophyl are able to obtain oxygen from carbon dioxide and water from certain hydrates. Also it should bo noted that some organisms can live, for example, even in sulphuric acid at a temperature of several hundred degrees.

x) Spying. This is another branch of space research but not at all commendable. Yet, it is carried on by the leaders of modern civilisation, the torch-bearers of progress—USSR and USA. Fortunately, or unfortunately we (the public) know next to nothing of this activity.

---

* Also see *Venus* infra

ASTRAL SCIENCES

ANCIENT Babylon is the birth place and nursery of the twin astral sciences-astronomy and astrology. Both arose from the same source the observations of the movements of astral bodies, like the Sun, the Moon and the planets. The Babylonian priests started observing the celestial bodies, as far back 3000 BC. From this early date, the priests, aided by the brilliancy of the atmosphere observed the aspect of heavens night by night and noted their observations on clay tablets. Gradually, they sorted out the periodicity of astronomical events like the rising and setting of planets, till they were able to calculate the relative positions of the Sun, Moon and planets at any given time and to predict eclipses

From the astronomical data thus collected, the Babylonian priests built up the mystic science of astrology. Religion and magic played a great part in the development of astrology. The astral bodies were deified and worshipped. The planet Venus for example, was identified with the goddess *Ishtar* or *Astarte*.

The systematic measurement of time, which began very early in Babylon, reduced the progress of events to some sort of order. The past, present and future, became meaningful realities. Starting with the natural unit, the day, the Babylonians worked out the month, which began with every new moon The days were named after the Sun and the Moon and the five planets, known then. This brought into being the Seven-day week. By 2000 BC, the Babylonians had settled down to an year of 360 days divided into 12 months.

The year was taken to be the time, that the Sun took to complete one revolution round the Earth. The journey of the Sun across the sky was mapped out into 12 divisions, to agree with the 12 months. Thus astronomical calculations and astrological speculations, progressed hand in hand.

The Babylonian priests became adepts at interpreting the movements of celestial bodies and predicting the future Their ability to forecast the positions of the planets and to predict eclipses, invested them with a mystic aura, and gave them a controlling power over the minds of men. Each temple put together a library of astronomical and astrological literature. These temples became seats of learning, where the methods of divination were taught.

With the conquest of Babylon by the Chaldeans in the 6th Cent. BC-the Second Babylonian empire-astrology reached its zenith. The Chaldean astrologers earned a world-wide reputation and were very much in demand everywhere.

Astrology was brought into Greece by Berosus, around 280 BC. By the 1st century BC. astrology became popular in Greece. From Greece, astrology passed on to Rome.

It the first century, the Alexandrian astronomer Ptolemy, wrote a book on astrology, This book is not as famous as his astronomical work *Almagest* which continued as an authoritative treatise on astronomy for many centuries afterwards (see The Earth). Ptolemy's reputation as an astronomer lent weight to the science of astrology and helped to elevate it to the same pre-eminence as astronomy.

By the time, the old Babylonian gods were forgotten Even the Greek gods had been metamorphosed into Roman deities. Astrology itself acquired a new idiom. The planets under their new names-Jupiter, Saturn, Mars, Mercury and Venus-became the new ruling powers. The astronomers who observed the sky and kept astronomical records were degraded as scribes-while those who cast horoscopes and foretold the future, became the High Priests of astronomy and astrology.

The Roman philosopher, naturalist and geographer, Posidonius was a firm believer in astrology and divinations. Under his influence, astrology "began an evil career which did not end even with Copernicus and Newton." (Dampier, *A History of Science)*

ASTROLOGY

THE ZODIAC

THE ancients believed that the Sun revolved round the Earth. The Sun's pathway, through the heavens, as it circled the Earth came to be known as the Zodiac. The Zodiac was divided into 12 divisions, corresponding to the 12 months of the year. Each division was named after some mythical god or animal or some other familiar object, and was represented by an appropriate symbol. These divisions were collectively called *The Signs of the Zodiac*. Thus we have *Aries* the Ram, *Taurus* the Bull, *Gemini* the Twins, *Cancer* the Crab, *Leo* the Lion, *Virgo* the Virgin, *Libra* the Balance, *Scorpio* the Scorpion, *Sagittarius* the Archer. *Capricorn* the Sea-goat, *Aquarius* the Water-bearer and *Pisces* the Fish.

The signs of the zodiac are occupied by the 12 constellations, among which the Sun travels, entering a new constellation, every thirty days. These constellation form the successive monthly dwellings of the Sun.

The fundamental idea of astrology is that heavenly bodies influence the lives and fortunes of men. First among such bodies are the fixed stars in the firmament. These stars (visible to the naked eye) have been grouped into twelve combinations, known as the *Constellations of the Zodiac*. Each of the 12 divisions of the zodiac is divided into 30 degrees or days and every one is born in one or another of these degrees (days).

Each sign of the zodiac is believed to exert its influence at the particular period assigned to it. All constellations (signs of the zodiac) have been allotted 30 days (degrees) each. An extra 5 days (degrees) is given to Cancer to make the total of 365 days or an astrological year.

Next come the planets *Venus, Mercury, Mars, Jupiter, and Saturn,* then the *Sun* himself and the *Moon*.. These planets including the Sun and Moon are the auxiliary powers that in conjunction with the constellations of the zodiac preside over the destinies of mankind.

The planets have been assigned a throne by day and a residence by night in one of the signs of the zodiac as below.

Planets	*Day*	*Night*
Saturn in	Aquarius	Capricorn
Jupiter in	Sagittarius	Pisces
Mars ,,	Aries	Scorpio
Venus ,,	Libra	Taurus
Mercury ,,	Gemini	Virgo

The Sun is day and night in Leo and the Moon day and night in Cancer.

Constellations of the Zodiac

The Astrological year begins with the spring equinox on March 21, and the allotted days for the various signs of the zodiac begin with March 21, as follows.

Period	*Latin Name*	*English*	*Indian*
Mar. 21—Apr. 19	Aries	Ram	Mesha
Apr. 20—May 19	Taurus	Bull	Vrishaba
May 20—June 18	Gemini	Twins	Mithuna
June 19—Jul. 23	Cancer	Crab	Kataka
July 24—Aug. 22	Leo	Lion	Simba
Aug. 23...Sep. 21	Virgo	Virgin	Kanya
Sep. 22—Oct. 21	Libra	Balance	Tula
Oct. 22--Nov. 20	Scorpio	Scorpion	Vrischika
Nov. 21—Dec. 20	Sagittarius	Archer	Dhanu
Dec. 21—Jan. 19	Capricorn	Seagoat	Makara
Jan. 20—Feb. 18	Aquarius	Waterbearer	Khumbha
Feb. 19—Mar. 20	Pisces	Fishes	Mina

We know that the basic assumption of astrology, that the Sun revolves round the Earth is false. Hence, it is difficult to attach credence to the theories or prognostications of astrology. Nevertheless, astrology commands an extensive clientele to-day. Surprisingly enough, it is the cultured and sophisticated men, that look for guidanc in the periodic forecasts, appearing in the papers. Which only shows, that man for all his knowledge and wisdom, still feels himself a lost creature on this planet.

OUTER SPACE

SPACE means the entire universe including the earth. Outer space, means all space that lies beyond the earth, but does not include the earth itself. Outer space begins where the earth's atmosphere ends and extends on and on, in all directions, apparently to infinity.

Space (Universe)

The Copernican revolution changed our idea of the universe from an earth-centred system to a sun-centred one. But it was soon realised that the sun-centred system (Solar system) was not equivalent to the universe. The Solar system was but a part of a gigantic star system, called a galaxy. Our idea of space thus extended beyond the Solar system but remained confined to the galaxy—that is to our own galaxy, the Milky Way.

Even as late as the first quarter of the 20th century, this idea prevailed, namely, that the Universe was co-extensive with our galaxy. Most astronomers and all laymen believed that all celestial bodies known and unknown—were contained in the Milky Way. Space, in other words, consisted of just one galaxy-ours.

It was, Edwin P Hubble, an American astronomer, who exploded this misconception. In 1925, Hubble showed that space consists of not only our galaxy but also millions of other galaxies as well. In 1929, he proved that the Universe, instead of remaining constant and unchanged, was actually expanding like a balloon, and that the galaxies are flying away from one another at very high speeds, and the farther they are, the faster they fly. The expansion of space or the flight of galaxies being uniform in all directions, an observer located at any one of the galaxies will see all other galaxies running away from him at velocities proportional to their distance from the observer.

Doppler Effect. The movement of a star or galaxy, affects its light as seen by an observer. If the star is moving towards the observer, its light will be shifted towards the blue end of the spectrum. If the star or galaxy is moving away from the observer its light will be shifted to the red end of the spectrum. This is known as the Doppler Effect or shift. The Doppler shifts of galaxies show that they are receding and that the universe is in a state of rapid expansion.

Looking from the Milky Way, we find that our outer galaxies are receding at increasing velocities. A cluster of several thousands of galaxies, some fifty million light years from us, which is noticed in the constellation of Virgo. is seen moving away from us at about 750 miles per second, while the group in Hydra (2,700 million light years) races away at 38,000 miles per second. Modern theories of the universe are based on this fight of galaxies, that is, on the assumption that matter is in a state of rapid expansion.

Primordial Universe

When we speak of the primordial universe, we are referring to the original universe, from which the present universe has evolved. No one really knows, how the universe looked like in the very beginning—that is, if there was a beginning. What we are trying to do, is to deduce from the existing trends and tendencies in the universe, the original conditions, which must have existed billions of years ago.

A Super-dense ball

It seems to be generally assumed, that our universe started out as a super-dense ball. It is argued, that if the universe is now expanding (as Hubble has shown) it must have been, once upon a time, in a state of high compression. High compression means high density. We have, at present, no means of knowing how high the density of the original universe was.

The nearest guess is that, the overall density of the universe, at that time, was comparable to the density of the nuclear fluid, tiny droplets of which form the nuclei of various atoms. It is calculated that the density of the atomic nucleus, is a hundred thousand billion (thousand million) times greater than the density of water. If the density of the primordial universe, was of this dimension, it follows that each cubic centimetre of space (universe) at the time, contained a hundred million tons of matter.

Expansion

It is a general law, that all material bodies are heated when compressed and cooled when expanded. The primordial universe, being highly compressed, must have experienced high temperatures. Heat, as we know, tends to expand matter High temperatures, therefore, must have, at some point, started an expansion of the universe. It is this expansion, which is continuing even now. All theories of space (universe), seek to explain the nature and consequences of this expansion.

Big Bang Theory

Georges Lemaitre, a Belgian scientist explained this process of expansion in what is known as the Big Bang Theory. He argued that billions of years ago, cosmic matter (universe) was in an extremely compressed state, from which expansion started by a primordial explosion. This expansion will go on indefinitely in time and space. The primordial expansion is the hallmark of the Big Bang Theory. But it also differs from other theories in two important respects It disagrees with the steady state claim, that new matter is being continuously created in the universe. It differs from the Pulsating theory, in that, it does not admit, that matter will revert to the original congestion point, from which the primordial explosion started.

Steady State Theory

This theory originally advanced by two astronomers, Thomas Gold and Hermann Bondi, has since received support from the celebrated British astronomer Fred Hoyle. The steady state theorists, do not agree with the idea of a primordial explosion. They say, that expansion started in the universe, as a matter of course It was the natural reaction to high temperatures The expansion is still continuing. But this expansion does not mean that the universe is thinning out, so to say. As old galaxies move apart new galaxies are being formed in the vacancies. That is to say, new matter is being continuously created to replace old matter, which is being dispersed.

An interesting question arises here. How much new matter has to be created to compensate for the dispersion of matter by expansion? George Gamow, suggests that if one hydrogen atom per litre of space is created once every billion years, it would be enough to replace matter, which is being lost continuously by expansion.* This implies, that comparitively very little creative work is involved in replacements.

If dispersing or dissipating galaxies are replaced by new galaxies, the universe will not change in appearence, to an observer, located at any one point. Expansion in other words, does not change the appearence of the universe. It has always been and always will be like what it is now.

Zero-gravity

A little girl, walking along a beach, found her skirt slipping. She pulled it up, but it slipped again and again. She had just learnt of gravity at school and knew, who was playing the mischief. "Listen gravity" she said sternly "stop playing dirty tricks."

Up there in space, gravity does not play any dirty tricks. But space seems to be trickier. When the astronauts in the Skylab, began to eat, their spoons and forks flew away at the slightest touch. Salt grains spread everywhere. Bread slices flew out of hand. Nothing ever remained in place, unless it was bolted down. Even the simplest every day task, became difficult under zero-gravity or weightlessness. The astronauts had to spend more than one and a half hours for their daily chores, which would hardly have taken fifteen minutes on earth.

Pulsating (Oscillating) Universe Theory

According to this theory, advocated by Dr. Alan Sandage among others, the universe expands and contracts alternately between periods running into tens of billions of years. Dr. Sandage thinks that some 12 billion years ago, a great explosion occurred in the universe and that the universe has been expanding ever since. It is likely to go on expanding for 29 billion years more, when gravitation would halt further expansion. From then on, all matter would begin to contract or collapse upon itself in a process known as 'implosion' for 41 billion years into an extremely supper dense state which will explode once again. This is the latest theory of the evolution of the universe.

Distances in Space

Light Year. Our terrestrial units of measurement hardly suit the dimensions of space. So we have evolved a new unit of measurement—the light year—to mark distances in the universe. A light year is the distance covered by light in one year in a vacuum, travelling at a speed of 300,000 km. per second. This means that a light year shows a distance of about ten billion km. (ten million million km). Astronomers also use another unit of distance, the parsec which is equal to 3 26 light years.

---

* George Gamow. *The Creation of the Universe.*

The significance of these new units of measurement will become evident, when we consider the incredible vastness of space The moon is only 3,500,000 km. from the earth and the sun 149,600,000 km. When we compare these distances with the distance of 4.34 light years (43,400,000,000,000 km.) that exists between the sun and its nearest star, Proxima Centauri and the distances from the earth to the stars Altair (16 light years), Vega (27 light years) and Deneb (1,400 light years), we can get an idea of the unimaginable distances that lie beyond the earth. And yet the Sun and Proxima Centauri, Altair, Vega and Deneb belong to the same galaxy of stars

Astronomical Unit (A.U.) A new Unit in space dimensions has been evolved by radar astronomy. This unit is called Astronomical Unit (A. U) It represents the mean distance between the sun and the earth, calculated on the data supplied by radars. The distance –the Astronomical Unit—has now become a key constant in determining distances in the solar system. A.U. in terrestrial measurements is approximately 149,600,000 km. or 92,957,000 miles In terms of space dimensions A. U represents 44,900,785 light seconds.

The new technique is likely to revise our established ideas of space dimensions based on the speed of light It is now known that the velocity of a radar pulse is accurate to one part in 100 million, whereas the velocity of light is known only to be accurate to one part in a million This means that the error in radar reading is only one hundredth of what it would be in light measurements.

MODERN ASTRONOMY

MODERN astronomy began with the Italian astronomer, Galileo. In 1609 Galileo heard of the telescope made by the Dutchman Hans Lippershey. He improved upon it and constructed a similar instrument that could magnify up to thirty diameters.

Optical Astronomy

It was this instrument, known as *refractor telescope*, that opened the field of optical astronomy Galileo made several startling discoveries. He found the Moon's surface to be rugged, and the Pleiades to contain over 40 stars. He discovered four of Jupiter's moons and observed the sun spots.

In 1668 Newton invented a new instrument, *the reflector telescope*. In a refractor telescope, light is gathered by a large objective lens. In a reflector telescope, a large curved mirror is used for this purpose. Both these types of optical telescopes are still in use.

The optical telescopes shut out the major portion of space from our view, for their range of vision is very limited in terms of space dimensions. Besides, they cannot identify or investigate stars or galaxies shrouded in cosmic dust.

The following tables show the biggest refractor and reflector telescopes, including those under construction, marked U.C.

Table 1

Refractor Telescopes

Lens Diameter (inches)	*Observatory*	*In operation since*
40	Yerkes Observatory, Williams Bay, Wisconsin	1897
36	Lick Observatory, Mount Hamilton, California	1888
32.7	Observatoire de Paris, Meudon, France	1893
32	Astrophysikalisches Observatorium, Potsdam, Germany	1899
30	Allegheny Observatory Pittsburgh, Pennsylvania	1914
28	Royal Greenwhich Observatory, Herstmonceux, England	1894
26 5	Universitata Sternwarte, Vienna, Austria	1878
26 5	Uuion Observatory, Johannesburg, South Africa	1925
26	US Naval Observatory, Washington, D C.	1873
26	Leander-McCormick Observatory, Charlottesville. Virginia	1883
26	Royal Greenwich Observatory, Herstmonceux, England	1897
26	Sternwarte-Berlin Babelsberg, Berlin, Germany	1912

26	Astronomical Observatory, Belgrade, Yugoslavia	1929
26	Tokyo Astronomical Observatory, Mitaka, Tokyo, Japan	1930
26	Mount Stromio Observatory, Canberra, Australia	1953
26	Astronomical Observatory of the USSR Academy of Sciences, Pulkova	1957

Table 2

Reflector Telescopes

Mirror Diametre (inches)	*Observatory*	*In operation since*
236	Academy of Sciences of the USSR, Zelenchukskaya, USSR	UC
200	Palomar Observatory, Mount Palomar, California	1948
150	Kitt Peak National Observatory, Tucson, Arizona	UC
150	Inter-American Observatory, Cerro Tololo, Chile	UC
150	Mount Stromlo Observatory, Canberra, Australia	UC
140	European Southern Observatory, La Serena, Chile	UC
129	Lick Observatory, Mount Hamilton, Californina	1959
120	European Southern Observatory, La Serena. Chile	UC
107	McDonald Observatory, Fort Davis, Texas	1968
104	Crimean Astrophysical Observatory, Nauchny, Crimea, USSR	1960
100	Mount Wilson Observatory, Pasadena, California	1917
98	Royal Greenwich Observatory, Sussex, England	1967
90	Steward Observatory, University of Arizona, Tucson, Arizona	1969
83	Institute for Astronomy, University of Hawaii, Mauna Kes, Hawaii	UC
84	Kitt Peak National Observatory, Tucson, Arizona	1961
82	McDonald Observatory, Fort Davis, Texas	1939

Radio Astronomy. In 1931, Karl Jansky, an American physicist discovered that radio waves from outer space could be studied through radio telescopes. The discovery promoted *Radio Astronomy.* Radio telescopes help us to "listen in" to stars and galaxies that lie far beyond the ken of the world's largest optical telescopes. Also, they enable us to study stars and galaxies within the range of our optical telescopes but which are not visible, owing to the haze of cosmic dust.

The world opened up by radio telescopes, is a world of sound and not of sight. Thus, the Milky Way, which looks like a river of light to the eye, is a hissing mass to the radio astronomer.

Table 3

Radio Telescopes

Antenna Diametre (feet)	*Observatory*	*In operation since*
1000	Arecibo Ionospheric Observatory, Arecibo Puerto Rico	1963
1000×115	Meudon Observatory, Nancy, France	1964
600×400	University of Illinois, Danville, Illinois	1962
400	University of California, Hat Creek, California	1960
360×70	Ohio State University, Delaware, Ohio	1962
350	Stanford Radioscience Laboratory, Stanford, California	1959
328×131 (2)	Lebedev Physics Institute, Serpukhov, USSR	1963
300	National Radio Astronomy Observatory, Green Bank, West Virginia	1962
250	Jodrell Bank, Macclesfield, England	1957

Indian Radio Telescope. In April 1970 India started operating its first radio telescope in Ootacamund (South India). This is one of the world's largest cylindrical telescopes with a span of 530 metres. It is built on an 11-degree slope on a hillside at Muthori village, just outside the Ooty Hill Station. Because the slope of the hill and the latitude of the station are equal (11 degrees north) the axis is parallel to the earth's axis of rotation, and celestial objects can be tracked for up to two hours at a time. Though it is four times more sensitive than the fully steerable Jodrell Bank radio telescope, the range of its operation is limited since it can only be steered north-south.

Radar Astronomy developed as a new technique in 1946 when radar echoes were first bounced off the Moon. The basic principle is simple. Short pulses of high frequency radio energy are aimed at a target, from which the pulses are reflected to the Earth, where they are picked up by a sensitive antenna-receiver system. We know beforehand the speed at which radar pulses travel, so that the time between their transmission and reception can be converted into a measure of distance.

Table 4

Radar Astronomy Systems

Antenna Diametre (feet)	*Observatory*	*Peak Transmitted Power (Kilowatts)*
1000	Arecibo Ionospheric Observatory, Arecibo Puerto Rica	2,500
250	Jodrell Bank, Macclesfield, England	
120	Haystack Lincoln Laboratory, Massachusetts Institute of Technology, Tyngsboro, Massachusetts	400
85	Jet Propulsion Laboratory, Goldstone Lake, California	100
84	Millstone Lincoln Laboratory, Westford, Massachusetts Institute of Technology, Westford, Massachusetts	5,000
50 (8)	Crimean Deep Space Tracking Station, Crimea, USSR	60

X-ray Astronomy

X-ray astronomy is one of the latest developments in astronomical research. This line of research started in June 1962 when instruments attached to a rocket showed X-rays coming from the direction of the constellation of Scorpius. Organised research in this direction began with the first X-ray satellite named 'Uhuru' (the Swahili word for freedom) which was launched in 1970 from San Marcos Island, off the coast of Kenya. Other satellites like OS 07 in 1972 and SAS-C in 1973 fitted with X-ray telescopes, have been sent up since.

It has long been known that the Sun is emitting X rays. Now, a number of other sources have been located outside the solar system. Some of these sources are compact objects like the neutron star (Pulsar) at the core of the Crab nebula and the quasar designated 3 C. 273. Other sources extend over a wide area, encompassing whole galaxies, like the two Magellan clouds. In a rocket experiment launched in Oct. 1969, five X ray sources were spotted in or near the galactic centre of our own galaxy. Altogether some 120 X-ray sources inside and outside our galaxy have been traced since 1970. The majority of these X-ray sources, do not emit light or radio waves.

GALAXIES

GALAXIES are huge congregations of stars that hold together by force of gravity. They are so big that they have sometimes been called 'island universes'. When the expanding material of the universe broke up in the first instance, billions of islands of gaseous matter were formed in space. These gaseous islands or proto-galaxies rotated, each with its own speed of rotation. Those with very low rotational speeds assumed nearly spherical shapes. Others assumed elliptical forms, with varying degrees of elongation, depending on their rotational speeds. Most of these gaseous islands, however, had such high rotational speeds that their bodies were flattened out into the shape of discs, from whose edges spiral arms streamed. The centre of the galactic disc was formed by a multitude of proto-stars rotating on regular circular orbits around the centre of the galaxy, whereas, the spiral arms were formed by highly diluted, dusty gas streamers which were caught in the general rotation and were twisted into the shape of spirals. The galaxies have thus come out in different shapes and sizes.

As the gaseous islands were settling down, local condensations--proto-stars-developed at many points within the galaxy. These condensations began to contract under their own weight into dense gas spheres. As a result of this contraction, the temperature of the gas spheres rose steadily and their heated surfaces began to emit heat waves and then the shorter wavelengths of visible light. As the central atmosphere of these contracting proto stars reached the ignition point—say 10 million degrees centigrade—contraction stopped, thermonuclear reactions began and millions of bright burning globules of gas emerged—the stars. When the stars appeared, the originally cool and dark proto-galaxies were transformed into the bright stellar galaxies, that they are today.

Structure and Composition. A structural analysis of the known galaxies, brings out three major forms—*Spiral, Elliptical and Irregular*. Spiral galaxies have a central nucleus with great spiral arms trailing round it. The Milky Way and the Andromeda Galaxy belong to this group. A special type of spiral galaxies is what are called *barred spirals* which have a central bar as a nucleus. The spirals comprise some 80 per cent of the galaxies so far known. *Elliptical* galaxies show purely elliptical shapes without any spiral arms. They range in shape from spherical ellipticals to extremely saucer-shaped ones and account for about 17 per cent of the known galaxies. *Irregulars* as the name suggests show no definite geometric pattern or shape.

It has been suggested that irregular galaxies, are youthful galaxies, while spiral galaxies represent middle age, and elliptical galaxies old age.

Peculiar Galaxies

Most of the galaxies show some sort of regularity and symmetry that enables us to classify them. But one or two per cent stand out as peculiar. These galaxies, no doubt can be counted as Irregular galaxies mentioned above. But their irregularities are so unique and their eccentricities so bizarre that it is best to classify them as *Peculiar Galaxies*.

The first peculiar galaxy was noticed in 1917. It appeared to be a double nebula with long curving tails. In the New General Catalogue (N. G. C) of 1888, they were numbered as nebulas 4038 and 4039. In 1921 when the photographs of these nebulas were scrutinised, it was found that they sent out long curving filaments, which resembled the antennae of an insect. The system has since become known as *Antennae*. The Antennae is about 50 million light years, from our galaxy, which among galaxies is not a great distance. Only about 1000 easily recognised galaxies lie closer to ours.

Another pair resembling the Antennae is N. G. C. 4676 A and 4676 B, nicknamed the *Mice*. One of the pair, sends out a long straight tail and the other, a curved tail. Another well-known pair is the *Whirlpool* galaxy and its companion (M. 51). In 1918, another object, since identified as an elliptical galaxy was found to send out a luminous jet. This object had been numbered 87 in the Messier Catalogue†. N. G. C. 3921 is another peculiar galaxy, without any companion at all. It sends out a number of streamers, that look like long tails, but no second galaxy has been noted anywhere in its vicinity.

A Retrospect

12 billion years ago. The universe, a super dense ball explodes with a bang.

11 billion years ago. Temperatures begin to drop in the diffused gases, released by the explosion and condensation of gases bring into existence, '*Proto-galaxies*' (*Proto-galaxies* are gaseous islands which finally evolve as galaxies.)

6 billion years ago. Condensation leads to contraction of matter and contraction raises the temperature of galaxies. Localised centres of gas form within galaxies and condense again into '*Proto stars*' (*Proto stars* are dense concentrations of gas and dust, that are on the way to becoming real stars.)

5 billion years ago. Proto stars reach ignition temperatures, by continued contraction and nuclear reactions begin in the stars. The nuclear energy lights up the stars, and the dark galaxies turn into bright stellar galaxies.

Cluster of Galaxies *

Most of the observable galaxies seem to be scattered in space more or less at random but there are numerous cases of galaxies clustering into groups, which may contain, as many as several hundred individual galaxies. Our own galaxy, the Milky Way belongs to a cluster of some 20 galaxies called the 'local group'. This group covers an area of about 3 million light years in diameter. The two largest galaxies in the group are the Milky Way and the Andromeda Galaxy, both of them spiral. Andromeda galaxy (M 31) is of special interest to us, because it appears, that our galaxy and M. 31 are actually approaching each other at a rather modest speed, some 50 km per second

---

† The Messier Catalogue was compiled by Charles-Joseph Messier of France around 1800.

* There is an unfortunate confusion of terminology between clusters of galaxies and galactic clusters. The latter are the clusters of stars within the spiral arms of the galaxies. (See Constellations infra)

*The following table gives the names and/or numbers of these galaxies, with their apparent magnitude, absolute magnitude and diameter in kiloparsecs (thousand parsecs).

Table 5

Galaxies

The Milky Way	—	—	30	(21)
Large Magellanic Cloud	0.9	48	10	17 7
Small Magellanic Cloud	2 5	56	8	-16.5
Ursa Minor system	—	70	1	(9
Sculptor system	8.0	83	2.2	- 11 8
Draco system	-	100	1.4	(10)
Fornax system	8.3	190	6.6	- 13 3
Leo II system	12.04	230	1.6	- 10 0
Leo I system	12.0	280	1 5	-10.4
NGC 6822	8.9	460	2 7	-14.8
NGC 147	9.73	570	3	-14.5
NGC 185	9.43	570	2.3	-14·8
NGC 205	8.17	680	5	16.5
NGC 221 (M 32)	8 16	680	2.4	16.5
IC 1613	9.61	680	5	- 14.7
Andromeda galaxy	3 47	680	40	21.2
NGC 598 (M33)	5.79	720	17	- 18 9
Maffei 1 †	11·0	1000	—	-19 0

---

* For Visual and Absolute magnitudes, see *Magnitudes* infra

† Maffei 1 and Maffei 2 were discovered by an Italian astronomer Paolo Maffei in 1968. They were identified as galaxies in 1971, from observations made at the Mount Wilson and Palomar observatories. They are estimated to be 3 million light years from earth. Maffei 1 has been identified as a giant elliptical galaxy. But it is doubtful, whether it belongs to our local group, for it does not appear to be bound to our group, gravitationally Much less is known about Maffei 2.

THE MILKY WAY

THE Milky Way is our home galaxy. A peculiar feature of this galaxy is a bright band of light, that runs almost in a perfect circle through it. As seen from the earth, this band looks like a river of light flowing through the sky. Actually, it is made up of millions of scintillating stars, which from this distance, seem to be placed in close proximity to one another. This spectacle had so fascinated our ancestors, that they have woven pretty legends about it among all nations. The Westerners called this river of light, the *Milky Way*. This name is now applied to the galaxy as a whole

Akash Ganga

The ancient Indians called it, "Akash Ganga" meaning the celestial Ganges. Legend has it, that in response to the insistent prayers of a devotee Bhagiratha, God Siva brought the Akash Ganga down and allowed a trickle of it to fall on the Earth. This trickle formed the earthly Ganga (River Ganges), which thus remains, even tody, sacred to Hindus all over the world

A Spiral galaxy

The Milky Way is a spiral galaxy. The main body of the galaxy is a disc 100,000 light years across and 5000 light years thick. The galaxy is estimated to contain some 200 billion stars The whole galaxy with its many trailing arms is revolving around a central plane at a fairly rapid rate. It does not however rotate like a solid wheel The inner parts complete a circuit round the centre, much more quickly than the outer parts. The average period of rotation (for all parts of the galaxy taken together) may be put down at 200 million years (See The Sun).

The principal gravitational force that controls this rotation is produced by the star clouds at the centre which have a total masss of about 50 billion suns. The mass of the entire Milky Way is calculated to be a littte more than 100 billion times the mass of the Sun.

The colossal dimensions of our galaxy and the diminutive size of our solar system will be brought home to us, when we reflect that a rocket speeding at 10,000 miles an hour, will take only 4 years and 2 months, to travel from the Sun to its distant-most planet Pluto, while the same rocket at the same speed will take 670 million years to cover the Milky Way from one end to the other.

Stellar Population

The stellar population of the Milky Way, is made up of three categories of stars. First, there are the stars in the hub and spirals of the Milky. The sun belongs to this group of stars. The hub and spirals contain concentrations of star-forming clouds as well as millions of young stars of the O and B types (See *Stars*). Some of them form groups of two to three hundred stars. These groups are called *Open* or *galactic culsters* (See *Constellations*). Beyond the disc and the open clusters, lie the *halo stars*. Many of these stars form miniature galaxies, containing tens of thousands of stars. These are called globular clusters. They contain very old stars. Beyond the *globular clusters*, there are several million individual stars, that run round rakishly on the outskirts of the Milky Way. All these form part of the galaxy.

The stars in the galaxy are being continually reshuffled In the course of a million years, two stars now close together but having a difference in velocity of one kilometre per second, will have separated by 3 light years. Therefore, in less than one *cosmic year* (250 million years), some groups of stars may disintegrate and new groups of stars may form. For instance, it is now suggested that the Pleiades and Hyades clusters, in the constellation of Taurus, would disintegrate and disappear in another cosmic year. New groups of stars may take their place. The physical make-up of the galaxy is also likely to change over intervals of the order of a cosmic year.

Galactic Nucleus

The centre or the nucleus of our galaxy is so completely obscured by dust clouds that we cannot learn anything about it through optical telescopes. What little we know about the nucleus has been collected by radio telescopes.

Our galactic nucleus is about 10,000 parsecs (parsec=3.26 light years) from the Sun. It appears to be a rotating disc of gas extending for about 500 parsecs from the centre In this rotating dise four sources of massive activity are known. One source called *Sagittarius A* is an area of high thermal activity. It emits hot clouds of gas from various centres inside it Another activity is the ejection of two streams of hydrogen, one moving in our direction at 50 km per second and the other moving in the opposite direction at 135 km per second. Both these rotating arms of hydrogen are expanding. They seem to be parts of a complete ring. A third source is a partial ring of gas consisting of molecules of hydroxyl radical, water vapour, ammonia, carbon monoxide and formaldehyde. This ring, (at a distance of 300 parsecs from the centre) is expanding at 100 km per second. The fourth source of radio emission is very near the centre, where new stars are being born. This area is crowded with stars, already full grown at the rate of a million stars per cubic parsec. This represents a stellar density, a million times greater than the stellar density in the neighbourhood of the Sun. It means, that while we on earth, can see only one really bright star (Sirius) at night, any watcher in the central disc can see a million stars like Sirius, with a total luminosity of about two full moons. That is to say, the centre of our galaxy is perpetually flood lit

Dr. Joseph Weber of the University of Maryland thinks that a Black Hole dominates the centre of our galaxy. One of his experiments showed powerful gravity waves emanating, apparently from our galactic centre. Strong gravity waves are generally associated with Black Holes. It is therefore quite possible that a Black Hole is holding our galaxy in its murderous grip.

STARS

STARS account for 98 per cent of the matter in a galaxy The rest 2 per cent consists of interstellar or galactic gas and dust in a very attenuated form. The normal gas-density between stars, throughout the galaxy, is about one-tenth of a hydrogen atom per cubic centimetre (cm^3) volume.

Stars tend to form groups. Lone stars going on their own are the exception rather than the rule in the universe. Single stars do not number more than 25 per cent of the stellar population. Double stars account for some 33 per cent. The rest are multiple stars Antares in Scorpio is actually two stars Capella and Alpha Centuari comprise three stars each, while Castor consists of six stars.

Binaries. Stars which appear single to the naked eye are sometimes found to be double stars or binaries in the telescope. These are two stars revolving around a common centre of gravity They are found in orbital motion round each other, in periods varying from about one year to many thousands of years.

Red Giants. When the hydrogen in a star is being depleted, its outer regions, swell and redden. This is the first sign of age. Such stars are called Red Giants They have already converted + 50 per cent of their hydrogen into helium.

Our star, the Sun, is expected to turn into a red star of this type, in another five billion years. The prospect is frightening. When the Sun turns into a red giant, it would have swelled to a hundred times in diameter and increased a thousand times in brightness-bright red. It will then occupy about 25 per cent of the horizon. The nearest planets Mercury and Venus would melt. The oceans of the earth would evaporate and disappear. The earth would remain a barren rock, heated to the melting point of lead. All life on earth would cease The Sun will survive. as a red giant, for about a hundred million years more, slowly dissipating its enlarged outer shell leaving a tiny core. This will be a faint, white-dwarf-Sun, no larger than the present planet Mars. Around this tiny star, the burnt-out earth will continue to revolve. (See *Life of a Star* infra).

Variable Stars. These are stars that show varying degrees of luminosity, at different times. The *Cepheid variable* was the first of this type to be noticed. In this type of stars, periods of high luminosity fluctuate between periods of, from a few hours to a thousand days or more.

Novas (Novae)

Novas are stars whose brightness increases by 10 to 15 magnitudes in a few days and then fades gradually into normal brightness. The distinction between novas and supernovas has not been precisely explained It would appear that they differ in degree and not in kind. Novas, it is believed, explode only their outer shells, unlike supernovas, which break up the stars into bits and scatter most of their matter into space. Novas occur much more frequently than supernovas but are much less spectacular

Supernovas (Supernovae)

Supernovas are stars whose brightness increases to 20 magnitudes or more. They are believed to be caused by the sudden explosion of the star. As Prof. C F. Powell puts it, "The whole structure of the star is blown to pieces; it flares up in brilliance, so that its intrinsic luminosity for the first thirty days following the explosion is equal to about 1,000 million of our suns."

About one star in 100 explodes like this In our galaxy of some 100 billion stars, a supernova explosion may occur once every hundred years. An exploding star or supernova releases more energy than a billion suns and ejects a lot of matter into space, at a velocity, very near to the velocity of light. Some supernovas may leave a super dense core; which rotates at high speed and may thus transform itself into a pulsar

Four supernovas have been identified in historical times, all before the invention of the telescope. They were noted in 1006, 1054, 1572 and 1604.

The 1006 supernova and 1054 were identified by oriental astronomers. The 1006 supernova occured towards the end of April 1006, in the constellation Lupus Initially, the star was as bright as Venus. It continued to be visible at night, for longer than an year. Although no visible remnant of this supernova is traceable, radio emissions from its remnant were identified in 1965. The 1054 supernova of which detailed descriptions survive in Chinese chronicles, is described "as a guest star". It is said that this supernova outshone the sun for many days and turned night into day. The Crab nebula is taken to be the remnants of this supernova.

The supernovas of 1572 and 1604 were noted by two European astronomers. Tycho Brahe and Johannes Kepler. According to Tycho, the 1572 supernova was brighter than any other fixed star and even brighter than Jupiter. The remnant of this supernova was not traced until 1952. Later the remnant was located, as a strong source of X-rays with energies between 1000 and 10,000 electron volts. The supernova of Kepler (1604) attained a brightness equal to, if not greater than, that of Jupiter. It was visible by day for a month and by night for a whole year. The remnant of this supernova, has also been identified as a radio source

The most recent supernova explosion in our galaxy took place in 1700 in the constellation of Cassiopeia. Strangely, enough, this explosion had not been noticed by any astronomer. This supernova was identified in 1948 from the relics-an-intense radio source named Cassiopeia A.

The cause of a supernova explosion is still in dispute. But most astronomers attribute it to the instabilities in the structure of the star, when the supply of nuclear fuel, in the core of a star is exhausted. These instabilities however develop only in stars greater than about one and a half times, the Sun. Stars which are smaller than that turn into white dwarfs

THE MAIN SEQUENCE

ONE of the earliest attempts to classify stars, was by analysing their light (waves) through a spectroscope. This analysis showed that most of the stars fall into a sequence of types denoted by the letters O, B, A, F, G, K and M. The types are easy to remember by the college mnemonic. "Oh Be A Fine Girl, Kiss Me". This sequence, known as the *Main Sequence* is a sequence of many factors

i. Temperature—The surface temperature of stars range from very hot stars at one end (O) to cool stars at the other end (M

ii. Colour—The colours of stars are closely related to their surface temperatures. Very hot O stars at one end are blue, G stars in the middle are yellow and M stars at the other end are orange-red.

iii. Size—The sizes of stars, also appear to follow the gradation of the *Main Sequence*. Thus, an O star has a radius of about 20 times that of the Sun. The Sun is more than 800000 miles in diameter and comes in the middle group G. The smallest in size are the M stars, which have a radius of about one-third of the radius of the Sun.

iv. Brightness—The *Main Sequence* also represents a scale of brightness. The brightness of stars is measured in *magnitudes*.* The magnitudes of known stars range from minus 7 to plus 23 and more The magnitude of an average star of each group, may roughly be stated as follows:

0-4, B 2, A+1, F+3, G+5, K+7 and M+11.

Table 6

Main Sequence

Spectral classification	*Colour scale*	*Star surface temperature (°Fahrenheit)*
O	Blue	63,000
B	Bluish	45,000
A	White	19,800
F	Yellowish	13,500
G Dwarf	Yellow	10.440
G Giant	Yellow	9,540
K Dwarf	Orange	8,820
K Giant	Orange	7,200
M Dwarf	Orange-red	6,120
M Giant	Orange-red	5.400

The Main Sequence is confined to stars, that are still in the hydrogen burning stage. Those which have passed the hydrogen burning stage are said to have evolved out of the Main Sequence. All stars spend, the early part of their lives on the Main Sequenee. Stars, which consume their hydrogen supply at prodigious rates, pass out of the Main Sequence very quickly. Such stars as the blue giant ***Regel*** in Orion, the red giant *Arcturus* in Bootes and the super-giant *Betelguese* in Orion, are those who have already left the Main Sequence.

---

* See *Magnitudes* infra.

Stars that have consumed their hydrogen supply are supposed to be dying stars. But a star may continue for millions of years, before it passed into the final stage of death.

Our Starry Neighbours

Of the 50 stars in the Sun's immediate neighbourhood, 4 are white dwarfs already dying, 2 are fast burning ultra-bright A stars, one is a brilliant yellow-white F star, 2 are yellow stars like the Sun, 7 are small orange K stars and 34 are tiny M stars

Table 7

Nearest Stars

Name/Number	*Distance (light years)*	*Magnitude*	
		Apparent	*Absolute*
Proxime Centauri	4.2	10.5	15.5
Alpha Centauri	4.3	0.06	4.7,6.1
Barnard's Star	6.2	7.7	13.4
Lalande 21185	8.0	7.6	10.7
Wolf 359	8.1	13.5	16.5
Sirius A	8.7	-1.58	1.3
Inne's Star	9.6	11.7	14.4
B. D.-12° 4523	9.9	9.5	12.1
Kapteyn's Star	10.2	9.2	11.7
Ross 248	10.2	13.8	16.3
Ceti	10.2	3.6	6.1
Procyon	10.4	0.48	3.0
Eridani	10.5	3.8	6.3
61 Cygni	10.7	5.6	8.0
Lacaille 9352	11.2	7.4	9.7
2398	11.3	8.8	11.1
Groombridge 34	11.6	8.1	10.4
Inai	11.6	4.7	6.9
Kruger 60	12.5	9.3	11.4
Van Maanen's Star	12.8	12.3	14.3

MAGNITUDES

MAGNITUDES represent a measure of brightness. *Apparent* magnitude is the measure of brightness (visual magnitude) which is observed from the earth. *Absolute* magnitude is the brightness, which a star would have at 10 *parsec's* distance (A *parsec* is equal to 3.26 light years)

Classification of stars by magnitudes or by a scale of brightness was first made by Hipparchus, a Greek, in the second century BC. He divided stars into 6 groups according to degrees of brightness, observable by the naked eye. The brightest star belonged to the first magnitude and the faintest to the sixth This scale of brightness, as perceived by the human eye, worked out at a ratio of 2.5 between magnitudes, that is to say, stars of the first magnitude were 2.5 times brighter than stars of the second magnitude and so on.

This scale was adopted by modern astronomers in 1856. But the ratio between magnitudes was made more accurate at 2.512. A difference of 5 magnitudes thus showed a ratio of 100 to 1 in brightness.

The star *Aldebaran* was taken as representing a brightness of 1.0 magnitude. The magnitudes of other celestial bodies were measured in terms of this unit. The magnitude of stars, brighter than *Aldebaran* were indicated by the minus sign and stars of lesser magnitudes by the plus sign. Thus, the higher the negative number (minus sign) the brighter the star, and the higher the positive number (plus sign) the fainter.

We have to on our guard against judging the true brightness of stars by their apparent brightness. Thus, our Sun appears to be about 40 billion times brighter than *Aldebaran*. But the Sun is only a few minutes away (about 9 minutes in terms of the light year) while *Aldebaran* is 53 light years away and is actually hundred times brighter than the Sun. Or take two other stars *Sirius* in *Canis Major* and *Canopus* in *Carina*. To the naked eye, Sirius appears to be twice as bright as Canopus. But Sirius is only 8.7 light years distant, while Canopus is 100 light years away. This means that Canopus shines 65 times more brightly than Sirius.

The naked eye can see stars down to + 6.5 magnitude. A 6" telescope can show stars down to +13 magnitudes. The largest telescope can photograph stars down to +23.5 magnitudes.

Table 8

(Relation between Magnitude and Brightness)

Difference in magnitude	*Ratio of light*
0	1: 1
0.5	1.6: 1
1	2.5: 1
2	6.3: 1
5	100: 1
10	10,000: 1
20	100,000,000: 1
40	10,000,000,000: 1

Table 9

(Brightness as seen from the Earth)

	Brightness Aldebaran=1
OBJECT	*MAGNITUDE* (Visual)
Sun	-26.5
Full Moon	-12.5
Venus	-4
Star Aldebaran	1.0
Naked eye limit	6.5
6-inch telescope limit	13
World's largest telescope (Mount Palomar, U S) Photographic limit -	23.5

Table 10

The Brightest Stars on the Horizon

Constellation	*Star*	*Type*	*Distance (light years)*	*Colour*	*Brightness Sun=1*
Centaurus	Alpha Centauri	G	4.3	Yellow	1.5
	Beta Centauri	B	300	Blue-White	5000
Canis Major	Sirius	A	8.7	White	23
Canis Minor	Procyon	F	11.3	Yellow-White	7.3
Aquila	Altair	A	16.5	White	11
Piscis Australis	Fomalhaut	A	23	White	14
Lyra	Vega	A	27	White	55
Bootes	Arcturus	K	36	Orange	110
Gemini	Castor	A	45	White	27
	Pollux	K	40	Orange	45
Auriga	Capella	G	47	Orange	170
Taurus	Aldebaran	K	53	Orange	100
Eridanus	Achernar	B	65	Blue-White	200
Leo	Regulus	B	75	Blue-White	120
Carina	Canopus	F	100	Yellow-White	1500
Virgo	Spica	B	260	Blue-White	2800
Scorpius	Staula	B	300	Blue-White	1700
	Antares	M	400	Red	5000
Orion	Bellatrix	B	360	Blue-White	2300
	Betelgeuse	M	500	Red	1700
	Rigel	B	800	Blue-White	40,000
Cygnus	Deneb	A	1400	White	60,000

LIFE OF A STAR

Star Birth. Stars are formed by gravitational contraction from vast clouds of galactic gas and dust. Star-forming clouds are thousands of times denser than the normal interstellar gas. They have a density going up to 1,000 hydrogen atoms per cubic centimetre. Many such pre-star clouds visible in our own galaxy, the nebula in Orion, being one.

The life of a star is spread over billions of years. Stars start life as condensing masses of gas. As condensation progresses, individual atoms are drawn towards the centre by force of gravity. They pick up speed as they fall to the centre According to the speed of the fall, they increase their energy which tends to heat the hydrogen atoms When this process goes on for some millions of years, the heat goes up to about 10 million degrees centigrade. At this temperature the hydrogen in a star ignites and begins to burn in a series of nuclear reactions. This marks the birth of a star.

The nuclear reaction in a star is called 'nuclear fusion' which goes on in all the stars, all the time. This means that lighter atoms are split up and reconstituted into heavier atoms. Thus at about 10 million degrees centigrade, hydrogen atoms are broken up to form helium. Four protons of hydrogen combine to make one nucleus of helium ($4H \rightarrow He$). When all the hydrogen in the star is converted to helium, the star begins to shrink and becomes smaller in size. As it gets smaller, temperature rises. When the temperature reaches a 100 million degrees, more complicated nuclear reactions occur. Three nuclei of helium combine to make one of carbon ($3He \rightarrow C$). One nuceus of carbon combines with one of helium to make oxygen ($C + He \rightarrow O$). As the star shrinks further and the temperature rises to say 2,000 to 4,000 million degrees, highly complicated nuclear fusions occur. Carbon and oxygen combine to form iron, magnesium, silicon and other heavy elements.

Dying Star. When the hydrogen in a star is converted into heavier atoms like helium, the density of the star increases many fold and the star is well nigh dead. The core of a dying star contains the densest matter in the universe*. The ultimate destiny of a star, according to present theories, is that it will turn into one of three things—according to its mass—White Dwarfs, Neutron stars or Pulsars and Black Holes.

If the star is about the mass of our Sun or less than that, it will turn into a white dwarf and finally die as a black dwarf. If the star is bigger than the Sun but not more than twice as big, it will turn into a neutron star or pulsar and thus die out. If the star is many times bigger than the Sun, it will turn into, what is called, a Black Hole.

White Dwarfs

Stars lighter than 1.2 solar mass tend to die as white dwarfs. The white dwarfs are no bigger than the Earth (around 6,000 km. radius) but their central density is very great. It can reach 10^8 grams per cubic centimetre This means, that a teaspoon of its material will weigh as much as a ton In white dwarfs, the enormous contracting pull of gravity is balanced by the pressure created by the rapidly moving electrons. White dwarfs are distinguished by their high luminosity and high surface temperature. A white dwarf will continue for millions of years generating heat and light. But it will steadily cool down and ultimately turn into a *black dwarf*, emitting neither heat nor light. It will, thus, be reduced to cinder and consigned to the ash heap of the Universe.

Neutron Stars or Pulsars

Stars whose mass is between 1.2 times and something less than 2 times the mass of the Sun, turn into neutron stars or Pulsars. Neutron stars are so-called, because they are made up, almost

---

**Note.* Constituents of matter are a function of density. At a density beyond 10^8 grams cm^3 (10^6 is million and 10^{12} is million million) electrons become so energetic, that they combine with protons in nuclei to form neutrons. Beyond 3×10^{11} grams cm^3, the nuclei begin to liberate neutrons. At around 3×10^{14} grams cm^3, nuclei break up into separate protons and neutrons and so on.

entirely, of atomic particles called neutrons. In a neutron star, matter is compressed until it approaches the density of matter within an atomic nucleus-about 10^{14} grams per cubic centimetre. A teaspoon of neutron star matter would weigh a billion tons. This is a density, a billion times greater than the density of white dwarfs.

The collapse of a big star into a neutron star happens in a matter of seconds. The shock wave of collapse, coming from the interior, blasts the outer layers of gases in the star into space. This would look like the explosion of a nova. After the explosion the star shrinks.

In the shrunken neutron star left by the explosion, gravitational energy would raise the temperature to many millions of degrees. Yet, the outer crust of the star, about a kilometre thick, remains unaffected and does not melt. It is a fantastically solid and rigid crystalline material, 10^{15} times stiffer than steel. Inside, the neutrons form a superfluid, with almost no viscosity,

Calculations show that an object as dense as a neutron star must also have a prodigious gravitational power-a hundred billion times that of the earth. So strong is the gravitational pull, that a mountain on the surface of a neutron star, would not rise higher than an inch. All the energy that a man put out in a life time, would not be enough to climb that one-inch mountain. It is estimated that as many as a 100 million of the 100 billion stars in our galaxy, must have burnt themselves out and have collapsed into neutron stars.

Pulsars. It is now agreed among astronomers that pulsars are fast-rotating neutron stars. Pulsars were first noticed by British astronomers in Cambridge in 1961. They are distinguished by the fact that they send out radio waves in regular frequency, with greater precision than the ticking of a clock. By 1969 some three dozen pulsars were located. The discovery of the Pulsar NP 0532 in the Crab Nebula in 1968, represented a major break through. This pulsar sent out radio waves at the remarkably short radio period of 0.033 second, the shortest yet found for any pulsar. It is presumed that this pulsar is a survival of the super nova explosion of A. D. 1054 which formed the Crab Nebula.

The Crab nebula pulsar (NP 0532) shows signs of slowing down, at the infinitesmal rate of about one part in 2500, in an year. This means that the pulsar is slowly decaying, as it uses up its energy. Meanwhile, it pours out radiation at a stupendous rate— about 10,000 times the radiation of the Sun.

NP 0532 is not the only Pulsar, known to be associated with an old supernova. PSR 0833-45, discovered by Australian astronomers in 1968, pulsates every 0.089 seconds. This has been located in the Vela Nebula, which is considered to be the debris from an unrecorded supernova explosion several thousand years ago. The rate of pulsation of the Vela pulsar is gradually lengthening, a property shared by other observed pulsars. It is also noticed that the pulsation of the Vela Pulsar, tends to become irregular. Such behaviour indicates that the pulsars could not safely be used as precise time keepers.

Black Holes

'Black Holes' is a misleading term, because what it represents are not holes at all. On the contrary, they are stars, which have contracted so much that they have developed super density, 10^{16} grams per cubic centimeter. This represents a density greater than the ultra-density of white dwarfs (10^8 grams cm_3) and neutron stars 10^{14} grams cm^3). The black hole in the density of all stars, whose mass is considerably greater than the mass of the Sun. They are so compact and their gravitational pull so strong, that even light or radiations produced by them cannot escape them. So they cannot be seen by optical telescopes.

Black Holes were predicted by Einstein's general theory of relativity. The theory is this. If a given mass is condensed into progressively smaller radii, its gravitational influence becomes so strong, that below a critical radius the radiation emitted by the object, can no longer escape from it. This critical value of the radius, is called the Schwarzchild radius after the German astronomer, Karl Schwarzchild who first obtained the solution of Einstein's field equations for a spherical mass in 1916. The Schwarzchild radius for the Sun, would be about 2 miles. An object, with the Schwarzchild radius, is referred to by astronomers, as a 'black hole' since it cannot be seen by a distant observer.

A Black Hole is an awesome phenomenon. It is the smallest and the densest object in the Universe. Its gravitational power is incredible. It can swallow up everything near it and nothing that gets into it, can ever escape from it.

It can neither crack nor split nor decrease in size. It can only grow and nothing in the Universe can stop it from growing. This is a foreboding prospect.

The Black Hole is a collapsed star or as some would call it, · *a Collapsar*. The collapse of the star or its transformation into a black hole is quick and invisible. The star merely winks out and is never seen again. But although invisible, it exerts a terrific influence over everything around it.

We do not know what is inside a black hole or what goes on within its bowels. It is however believed that a black hole has a perfectly smooth surface without any ups or downs. A black hole cannot be identified by any direct means· Indirect evidence is, however, available. It is its enormous gravitational power that gives it away.

Cygnus X—1

One such black hole, recently identified, is a powerful but invisible X-ray object, called Cygnus X-1. It has been spotted by satellites, which carried X-ray telescopes. Cygnus X-1 is paired with a super-star, (HDE 226868) which is visible. The unseen Cygnus X-1 is drawing out a stream of gases from its visible companion. The stream of gas spirals around the black hole. One end of the spiral ultimately disappears into the black hole. What is happening is that Cygnus X-1 is bleeding its companion, a big blue star to death. As the gases spiral in towards the black hole, they collide, compress, heat up high temperatures and send out intense X-rays. It is these X-rays that have indicated the presence of a black hole in the vicinity

This Black Hole is estimated to be about the size of three Suns On the face of it, this appears to be a small size for a black hole, which is capable of swallowing up whole galaxies· But this size is the *Schwarzchild* size. When our Sun is reduced to the Schwarzchild size, it will have a radius of about 2 miles only. Cygnus X-1 has a Schwarzchild radius 3 times the present radius of the Sun, which is something like, five hundred thousand miles. This is big enough to absorb galaxies.

Some scientists suggest that the centre of our galaxy is occupied by a Black Hole.* Dr. Kip Thorne of the California Institute of Technology, a leading authority on collapsed stars, thinks that ultimately this Black Hole, if it exists, will eat up the whole matter in our galaxy. He says "We would like to sweep this fact under the carpet, but occasionally, we drag it out, look it in the face and shudder".**

---

* See the *Milky Way*, supra·

** Also see the *Quasars*, infra.

CONSTELLATIONS

STARS forming a group are called constellations. Many of the constellations are only seemingly so. A number of stars appear to form a group, because some happen to be almost behind the others in our line of vision, though they may be many thousand light years apart and have nothing to do with one another.

Many stars and groups of stars, forming apparent constellations have been named after legendary heroes or called after familiar forms and animals, Some names like .Corona Borealis (the Northern Crown), Cygnus (the Swan) and the seven stars in Ursa Major, known as the Plough, bear some semblance to the figures of things they are supposed to represent. Many others call for a highly extended imagination in order to connect their shapes with the forms of things they are called after.

Star Clusters

There are two types of star groups· The first group called *open* or *galactic clusters* are groups of up to two or three hundred stars, which are found in the spirals of the Milky Way. The open clusters visible to the naked eye are the Pleiads, the Hyades and Praesepe. Of these, the finest spectacle is Pleiads which glitter like a swarm of fire-flies tangled in a silver braid. The Pleiads consist of some 200 stars, of which we can see some 12 or 14 without the aid of mechanical devices.

The second group, called *globular clusters*, contains over one hundred thousand stars and represents the outer stellar population of the Milky Way.

Recognised Constellations

In 1928 the International Astronomical Union recognised 88 constellations. These constellations are mainly used to describe the location of stars and the positions of comets, meteors or other heavenly bodies. Obiviously, it is easier to speak of a star in Aquila or Orion than to describe its exact astronomical position. The names of the recognised constellations are given below:

Table 11

Constellations

Latin Name and Abbreviation		*English Version*
Andromeda	And	Chained Maiden
Antlia	Ant	Air Pump
Apus*	Aps	Bird of Paradise
Aquarius	Aqr	Water Bearer
Aquila	Aql	Eagle
Ara*	Ara	Altar
Aries	Ari	Ram
Auriga	Aur	Charioteer
Bootees	Boo	Herdsman
Caelum	Cae	Chisel
Camel Opardalis	Cam	Giraffe
Cancer	Cnc	Crab
Canes Venatici	CVN	Hunting Dog
Canis Major	CMa	Great Dog
Canis Minor	CMi	Small Dog
Capricornus	Cap	Sea Goat
Carina*	Car	Keel
Cassiopeia	Cas	Lady in Chair
Centaurus*	Cen	Centaur
Cepheus	Cep	King
Cetus	Cet	Whale
Chameleon*	Cha	Chameleon
Circinus*	Cir	Compasses
Columba	Col	Dove
Coma Berenices	Com	Berenice's Hair
Corona Australis	CrA	Southern Crown
Corona Borealis	CrB	Northern Crown
Corvus	CrV	Crow
Crater	Crt	Cup
Cruz*	Cru	(Southern) Cross
Cygnus	Cyg	Swan
Delphinus	Del	Dolphin
Dorado*	Dor	Swordfish
Draco	Dra	Dragon
Equuleus	Equ	Little Horse
Eridanus	Eri	River Eridanus
Fornax	For	Furnace
Gemini	Gem	Twins
Grus*	Gru	Crane
Hercules	Her	Hercules
Horologium*	Hor	Clock
Hydra	Hya	Sea Serpent
Hydrus*	Hyi	Water Snake
Indus*	Ind	Indian
Lacerta	Lac	Lizard
Leo	Leo	Lion
Leo Minor	LMi	Small Lion
Lepus	Lep	Hare
Libra	Lib	Scales
Lupus*	Lup	Wolf
Lynx	Lyn	Lynx
Lyra	Lyr	Lyre
Mensa*	Men	Table(Mountain)
Microscopium	Mic	Microscope
Monoceros	Mon	Unicorn
Musca*	Mus	Fly
Norma*	Nor	Square
Octans*	Oct	Octant
Ophiuchus	Oph	Serpent Bearer
Orion	Ori	Orion (Hunter)
Pavo*	Pav	Peacock
Pegasus	Peg	Pegasus
Perseus	Per	Perseus (Champion)
Phoenix*	Phe	Phoenix
Pictor*	Pic	Painter's Easel
Pisces*	Psc	Fishes
Piscis Austrinus	PsA	Southern Fish
Puppis	Pup	Poop (Stern)
Pyxis	Pyx	Compass
Reticulum*	Ret	Net
Sagitta	Sge	Arrow
Sagittarius	Sgr	Archer
Scorpius	Sco	Scorpion
Sculptor	Scl	Sculptor
Scutum	Sct	Shield
Serpens	Ser	Serpent
Sextans	Sex	Sextant
Taurus	Tau	Bull
Telescopium*	Tel	Telescope
Triangulum	Tri	Triangle
Triangulum Australe*	TrA	Southern Triangle
Tucana*	Tuc	Toucan
Ursa Major	UMa	Great Bear
Ursa Minor	UMi	Small Bear
Vela*	Vel	Sails
Virgo	Vir	Virgin
Volans*	Vol	Flying Fish
Vulpecula	Vul	Fox

* Those marked with an asterisk are not visible from mid northern latitudes.

QUASARS

Quasars or Quasi Stellar Radio sources, are as the name implies, part-star and part-radio objects. These were originally considered stars, and later classified as radio-galaxies,that is galaxies, that emit radiation at radio frequencies. In 1960 it was found, that these objects were not mere radio galaxies, but were unique objects which combined the characterestics of stars and radio galaxies. They were therefore named *Quasi-stellar Radio Galaxies* or *Quasars*.

Quasi Stellar Object (Q S O)

In 1965, it was noted that many of the so called quasars, were quiescent, that is, radio quiet. In fact it turned out, that the majority of quasars were radio-quiet. Such quasars, were named *Quasi Stellar Objects* or Q. S O.

Discovery of Quasars

The first quasar, was discovered, or rather identified, by Thomas Matthews and Alan Sandage (US) in 1960. It was a star like object numbered 3C 48 in the Third Cambridge Catalogue and was supposed to be a radio galaxy In 1963, another quasar, numbered 3C 273 was identified. Like 3C 48, this was also classified as a radio galaxy More quasars have been identified since. Though many objects are suspected to be quasars, only about 350 have been confirmed as such till now. These are compact blue objects that emitted strongly in the ultra violet, as well as the radio portion of the spectrum. They exhibited many peculiarities like fluctuating brightness and large red shifts.

Peculiarities of Quasars

(1) **Excessive Radiation.** The two quasars closely studied are 3C 48 and 3C273. 3 C 48 was as bright as a star of the 16th magnitude but it emitted much more ultra-violet radiation. than any other star of the same magnitude. 3. C 273, also showed radiation, out of all proportion to its size or brightness.

(2) **Fluctuating Brightness.** The quasars show fluctuations in brightness. 3 C 48 showed a variation of more than 40 per cent in an year. 3 C 273. also varied in brightness by as much as 50 per cent. Quasars generally fluctuate in brightness often within weeks or months or sometimes in only a few days.

(3) **Fairly Small Objects.** It is a well known principle that a celestial body does not change in brightness faster than the time, it takes light to cross it. Therefore, if a quasar is seen to change substantially in a week, it can only be a few times larger than the solar system, which light can cross in about half a day If a quasar was as big as our galaxy, it will not change in brightness for a hundred thousand years, because it takes 100,000 years for light to traverse our galaxy. No such quasar has been noticed so far. It follows that quasars are comparatively small objects, which cannot compare with galaxies in size.

(4) **Reservoirs of vast energy.** Compared to their size, the energy produced by quasars is incredibly vast. Some quasars emit energy which is greater than the combined energy emitted by a hundred large galaxies, like our Milky Way. In fact, a typical quasar, throws out in one second, enough energy to meet all the needs of the Earth for billions of years.

(5) **Far away bodies.** All quasars show large red shifts, The red shift tells us, how far away the object is. The spectrum of 3 C 273 showed a red shift of 158. 3 C 273 showed a larger red shift. 367 The red shift of 3 C 48 showed it to be as far away as 2 billion light years The larger red shift of 3. C. 48 indicated a distance of same 4 billion light years. Quasar OQ 172 discovered in 1973, is the farthest of the quasars known. It is about 10 billion light years away. This means that the light from this quasar (OQ 172) must have started on its way towards us, about 2 billion years, after the Big Bang, which is currently estimated to have occurred 12 million years ago. So, what we are seeing now, is how the quasar looked 10 billion years ago, not how it looks like now.

(6) **Fast Receders.** The red shift shows not only how far the object is, but also how fast it is receding from us (All red shifts small and large show recession) The speed of recession, for the quasars. ranges from 15 per cent of the velocity of light to over 90 per cent. 3 C 273 appears to be receding from us at about 96,000 km per second, which is a little more than 30 per cent of the velocity of

light (300,000 km per second). But the red shift of quasar OQ 172 shows that it is moving away from us at about 90 per cent of the velocity of light. The red shifts of quasars tell us a fascinating tale. As Prof John Wheeler of Princeton puts it "Quasars are beacons that light up the far away and the long ago".

(7) **Shortlived Objects.** Quasars are shortlived in comparison to stars. While stars survive for many billions of years, quasars have a life time well below a billion years. Considering the prodigious energy that they emit, it is small wonder that they do not survive long.

Energy Potentials of Quasars

Nobody knows how the quasars have come to possess such massive energy potential. Among the various explanations offered, two may be mentioned here ThomasGold of Cornell University, thinks that quasars are a product of the wholesale cataclysm caused by a 'black hole'. A black hole is characterised by a gravity, so colossal that it emits nothing. Nothing that falls into it can get out–not a sound, not even a heat or light wave. When a massive star has collapsed into a black hole, it reaches out to pull all the nearby stars into itself, thus making the black hole bigger and stronger. When the black hole grows powerful enough to menace a whole galaxy the threatened stars put out all their energy to keep from falling in. The crackling heat of a whole galaxy fighting to avoid going down a black hole, might very well be the mystery behind the incredible energy output of the quasars.

Matter and Anti-matter. Another hypothesis, that incidentally explains the great energy released by quasars, is that in the universe, matter is balanced or countered by anti-matter. Physicists have discovered that the *protons and electrons* of a hydrogen atom have anti-particles, called *anti-proton* and *positron.* These anti-particles have the same properties as protons and electrons but opposite charges. It is argued that if a piece of matter and anti-matter are brought together, the protons will annihilate the antiprotons and the electrons will destroy the positrons. The resultant release of energy is calculated to be many thousand times more than that of a hydrogen bomb of similar mass.

It is quite possible that matter and anti-matter mixing in certain regions of the universe will annihilate each other and in the process release enormous quantities of energy. This can very well explain the tremendous energy potentials of the quasars.

The Solar Eclipse

On 30 June, 1973, a giant supersonic jet, Concord, began a fantastic journey across the continent of Africa at exactly 9.30 a.m., West-African time. It raced the Moon's shadow at 2,000 kmph at 18,000 metres altitude for almost 3,000 km. The shadow, caused by the longest total solar eclipse in recent history (the next comparable one will only be in 2050 AD), had stretched to a diameter 260 km. wide and had brought post-twilight darkness at midday over the land below.

A solar eclipse (strictly speaking an occultation) occurs when the Moon lies in between the Earth and the Sun exactly in a line. This can happen only on a new moon day. (A lunar eclipse occurs when the Earth lies between the Sun and the Moon on a full moon day.) When we on Earth see the solar eclipse, an observer on Moon will see a partial eclipse of the Earth as the shadow of the Moon falls on Earth. Similarly, a solar eclipse on the Moon will coincide with the lunar eclipse on Earth. Normally, one would expect a solar or lunar eclipse to take place once a month when the Sun, Moon and Earth come in a line. However, since the orbit of Moon is slightly inclined to the plane of the ecliptic, the chances that they come exactly in a straight line are small. Even if they do, since the Earth has a much larger disc, the eclipse can be observed from only certain regions of the globe.

Quasar Population

The quasar population of the universe is estimated to have been about 14 million, in the first instance. As the life-time of a quasar is short, many of these quasars must have degenerated into less luminous, less active objects, perhaps into ordinary galaxies. We know of their existence in the past, because the signals they emitted billions of years ago, are only now reaching our telescopes.

To-day, the total population of quasars (including the radio quiet QSOs) may be estimated at about 1.5 million. Out of these, about 35,000 may be reckoned as radio-emitting quasars.

THE SUN

THE SUN is one of the stars in the Milky Way. Modern estimates place the Sun at a distance of 30,000 to 33,000 light years from the centre of the galaxy. The Sun and the neighbouring stars generally move in almost circular orbits, around the galactic centre at an average speed of about 250 km per second. The Sun at this rate takes 250 million years to complete one revolution. round the centre. This period (250 million years) is now called a *cosmic year.*

The Sun dominates a space of at least 8 billion miles across. so far, that light travelling at 186,282 miles a second requires half a day to cross it. The Sun is the head of a large family of 9 planets-*Mercury, Venus, Earth. Mars, Jupiter, Saturn, Uranus, Neptune* and *Pluto*-the 32 satellites accompanying the planets, thousands of planetoids or asteroids and comets.

The Sun contains more than 99.87 per cent of the entire mass in the solar system It controls the movement of the planets and the asteroids and the comets. as well. It is the source of all heat and light in the solar system The Sun's energy is generated by nuclear collisions in its interior Like all other stars, the Sun is composed mainly of hydrogen It is calculated that the Sun consumes about trillion pounds of hydrogen every second. The temperature in the Sun's interior is estimated to reach about 20,000,000° C. 36,000,000° F).

The Sun is at a mean distance of one AU; that is, 92,955,945 miles from the Earth It has a diameter of 865,390 miles and a surface temperature of 5,700° C. Its surface area is approximately 12,000 times that of the Earth. In volume, it is 1,306,000 times the size of the Earth.

The glowing surface of the Sun which we see, is called Photosphere. Over this surface lie two layers of solar atmosphere. The inner layer called the Reversing Layer extends outward for a few hundred miles. The outer layer called Chromosphere, because of its reddish colour, extends, for several thousand miles Beyond this layer is the magnificent corona of the Sun, which is visible during eclipses.

Solar energy generated by thermonuclear reactions in the core is carried to the outer layers by a process of convection. The convective zone is just under the photosphere, which produces most of the visible light received by the earth. The temperature of the photosphere and the inner layer of the chromosphere is at a minimum. But the shock waves sent up from the convective zone rise through the upper chromosphere and the corona, till it reaches some two million degrees kelvin * in the corona. It is from the corona that solar winds go out into interplanetary space

Iron, nickel and calcium are believed to be the principal elements in the composition of the corona, all in a state of extreme attenuation and high excitation that indicates temperatures of the order of a million degrees F.

Of the gaseous elements in the Sun's atmosphere, more than sixty have been identified as terrestrial elements all in vaporous form of course, because of the intense heat of the Sun.

Sun-spots are dark patches noticed on the surface of the Sun, They vary greatly in size The largest spot ever measured (April 1947) covered 7,000 million sq miles or approximately 0.7 per cent of the Sun's visible surface. The life periods of these spots also vary. They may last from a few hours to many weeks

They show strong magnetic fields and reach a maximum every 11 years. During the maximum a sun-spot period, the Sun shows marked activity in shorter "wave lengths" like X-rays and ultra-violet radiations. Frequent solar eruptions and solar flares occur These produce great reactions on the Earth and its atmosphere such as ionospheric disturbances, magnetic storms, interruptions of radio communications, unusual auroral displays and a lowering of the average cosmic ray intensity.

Solar flares, usually associated with sun-spots are eruptions from the outer atmosphere of the Sun, when clouds of hot ionised gas roll out of the Sun for many miles The Naval Research Laboartory, Washington, has taken photographs of a solar eruption that occurred on the night of December 13, 1971 The photos-the first of its kind-were taken by a device called *White Light Coronagraph* aboard the orbiting solar observatory, OSO—7. They show enormous clouds of gas spewing out of the flaring region on the back side of the Sun. The clouds were 20 to 40 times the size of the Earth and were shot out of the Sun's surface at speeds of 96. km. per second of through the outer surface-the Corona. According to Dr. Richard Tousey N. L. R. Project Director, if the blast of clouds had been aimed towards the Earth instead of away from it, it would have caused great auroral displays, put magnetic compasses out of operation and disrupted long-distance telephone communications.

---

* See *Temperature* Gen. Information.

Solar Wind. The first clue to the existence of the solar wind was provided by comets. A German physicist Beerman, showed that comet tails were turned backwards, when the comets approached the Sun, because a steadily blowing solar wind was pushing the comet tail away from the Sun. Recent researches through satellites have shown that the solar wind is made up of a plasma * that is, ionised gas, mostly hydrogen and helium containing nearly an equal number of protons and electrons. It flows outward from the Sun at supersonic speeds, around 400 km. a second. Apparently, this wind sweeps through the whole solar system to a distance of 40 AUs from the Sun, which coincides with the very limits of the planetary orbits.

Due to the Sun's rotation, the solar wind travels in spirals and carries with it magnetic fields. The Earth's magnetic field -- the magnetosphere — acts as a shield against the ever blowing solar wind and deflects it away from the Earth. Nevertheless particles of solar wind, sometimes pierce the magnetic shield and enter the upper atmosphere, where, like the solar flares they cause auroral displays.

The solar wind distorts the shape of the magnetosphere. The magnetosphere extends to a distance of 64,000 km. above the Earth—10 times the radius of the Earth. On that part of the Earth exposed to the Sun, (the sunlit side) the solar wind sweeps along the magnetopause *(See The Earth)* past the Earth. On the other side of the Earth (the night side) the solar wind converges again and compresses the magnetic field into a plume or tail, more or less like what it does to comets. The tail thus formed extends to over six million km on the night side of the Earth. The particles of the solar wind and also those from the deep space are trapped in the tail and travel back and forth endlessly.

Polar Auroras. There are two auroras, the Aurora Borealis or Northern Lights and the Aurora Australis or Southern Lights. These are lights that sweep across the sky in waves or streamers or folds. They are very often multi-coloured and provide one of the finest spectacles in nature. They occur in the Arctic and the Antarctic regions. But the Northern Lights can be seen as far south as New Orleans in America and the Southern Lights as far north as Australia.

The auroras are chiefly caused by sunspots, which are magnetic storms on the surface of the Sun. These storms discharge electrified particles into space The Earth's magnetic poles attract these particles. Consequently, the north and south poles are the radiating centres of these electro-magnetic displays. The electrified particles from the Sun cause gases in the upper atmosphere to vibrate and glow in colours peculiar to them, just as a neon sign glows when electric charges pass through it. The causal relation between sun spots and auroras, has been doubted because the interval between the two was always erratic and never uniform. This has now been explained by the discovery of the Van Allen Belt.

Van Allen Belt. The Van Allen belts, two layers of charged particles surrounding the Earth were discovered in 1959 by physicist. James Van Allen, when analysing data from early Explorer and pioneer rockets. Pioneer XII later indicated that the two belts were high intensity zones of a larger band of radiation called *mangnetosphere* extending to about 40,000 miles out from the Earth. Here the protons and electrons shot out from the Sun are caught and held by the magnetism of the Earth The inner belt with its centre, some 1,500 miles from the Earth does not touch the atmosphere. The outer layer, several hundred miles high is much larger and touches the atmosphere in the vicinity of the poles. Electrons that burst out with sunspots are trapped by the inner layer. Only the "overflows" pass into the outer belt and illumine the atmosphere. This is supposed to explain the irregular time lag between sunspots and auroras.

---

* Plasma is a fourth state of matter (in addition to solids liquids and gases) where the gases are ionised. An *ion* is an atom or group of atoms, which has gained or lost one or more electrons and thus carries a negative or a positive charge. *Proton*, the nucleus of the hydrogen atom, without its electron is a *hydrogen ion*, *Alpha particle*, the nucleus of the helium atom, without its electron is a *helium ion*.

PLANETARY SYSTEMS

A Planetary System implies a central star, accompanied by planets which revolve round it. The solar system to which our Earth belongs is a planetary system centred in the Sun.

Planetary systems are to be distinguished from *Planetary nebulas*. These are masses of gas around a central star. They look like shells or layers of gas, around a central nucleus About 400 such nebulas have been observed in our galaxy. It may happen that some of these planetary nebulas, are, in fact planetary systems. But, at present, the evidence on this score is scanty.

Planets

The term *planets* is derived from the Greek word *planetes*, meaning, wanderers. Unlike the stars, which are visible in their fixed positions in the sky always, the planets shift their positions and sometime even disappear from view. Therefore they came to be called planets or wanderers. The fist known planets were named after the Roman gods *Mercury*, *Venus*, *Mars*, *Jupiter* and *Saturn* The other planets, when they weae discovered later, were also named according to the old pattern—*Uranus*, *Neptune* and *Pluto*.

The planets are divided into the *inner planets* and the *outer planets*. The inner planets are *Mercury*, *Venus*, *Earth* and *Mars*. The Earth is the largest of the inner planets and the densest of all planets. All the inner planets are dense rocky bodies and are collectively called terrestrial planets, because they resemble the Earth. The outer planets, *Jupiter*, *Saturn*, *Uranus* and *Neptune* are very big, with large satellite families. They are composed mostly of such elements as hydrogen and helium. These planets are called Jovian, after Jove the Greek name for Jupiter, because they resemble Jupiter in many things. All of them rotate furiously, wear dense atmospheres and consist of far lighter elements than the earth-like or terrestrial, inner planets.

The outermost planet Pluto is in a class by itself. It is supposed to be a dense planet like the inner planets, although it is the farthest of the outer planets.

Table 12

Rotation and Revolution

Planet	*Rotation*		*Revolution*	
Mercury	58 56	days	88	days
Venus	243	days	224.7	days
Earth	1	days	1	year
Mars	1.03	day	1.88	years
Jupiter	9 93	hours	11.86	years
Saturn	10.23	hours	29 46	years
Uranus	10.8	hours (?)	84.01	years
Neptune	15 8	hours (?)	164 1	years
Pluto	6.93	days	247	years

Table 13

Planetary Data

Planet	*Diameter (in miles)*	*Mass (Earth=1)*	*Density (water=1)*	*Gravity (Earth=1)*	*Escape velocity in miles per sec.)*	*Average distance from Sun (in million miles)*	*Minimum distance from Earth in million miles)*	*Average travel time from Earth*	
Mercury	3,100	0.056	5 13	9.36	2.6	36 0	40	115	days
Venus	7,700	0.817	4.97	0,87	6.4	67 2	24	146	days
Earth	7,926	1.00	5.52	1.00	7.0	92.9	...	...	...
Mars	4,200	0.108	3 94	0 38	3.1	141.5	35	237	days
Jupiter	887,003	18 0	1.33	2.64	37.9	483:4	366	[illegible].6	years
Saturn	75,100	95.2	0.69	1.13	23 0	886.0	743	5.6	,,
Uranus	29,200	14.6	1.56	1 07	13.7	1782 0	1606	15	,,
Neptune	27,700	17.3	2.27	1 41	15 5	2792.0	2678	30	,,
Pluto	3,500	0.06	4.0	0.3	unknown	3664.0	2650	30	,,

OTHER PLANETARY SYSTEMS

A question that has intrigued astronomers and laymen alike, is whether there are other planetary systems, like the solar system in the universe. Many astronomers think that now, they are well on their way to answer this question in the affirmative. The Sun is an ordinary star, and has been formed in much the same way as other stars. It therefore stands to reason, that if the Sun has planets, many other stars must have them too.

The difficulty has been to gather optical or radio evidence to substantiate this theoretical assumption. For, the nearest stars are many light years distant. Their planets, if they have any, will be far too small for our most powerful telescopes And planets, as a rule, are not radio sources However, indirect evidence is available to show that at least 3 stars out of the 12 nearest to the Sun have some sort of a planetary system.

Barnard's Star

Barnard's star, some 6 million light years from the Earth, is one of the first stars noted by the astronomers, as being likely to have a planetary system like our own. Now, two Canadian scientists Oliver Jensen and Tadenz Ulrich claim in *Astronomical Journal* that Barnard's star has five planets orbiting it In 1969, it was thought that the star had two planets. The number has now up to five. They have masses ranging from 0.7 to 1.6 times the mass of Jupiter, the largest planet in the solar system. Orbiting distances from Barnard's star are calculated to be, between 0.95 and 4.7 times the Astronomical Unit. (AU the mean distance between the Sun and the Earth.)

None of the planets however is likely to have, terrestrial conditions because Barnard's star is a feeble dwarf only 1/6 the mass of the Sun and it shines but faintly on its planets.

It looks likley that the Milky Way, with its 100,000 million stars, will have several, hundred / thousand million planets too. And this goes for other galaxies, as well

The following is a list of stars, near to the Sun, which are supposed to possess planetary systems like our own.

	Star	*Distance (Light years)*	*Planet-Mass (Jupiter=1)*
1	Barnard's Star	6.1	1.5
2	Lalande 21,185	7.9	10
3	61 Cygni	10.7	8
4	BD +5 1,668	12.4	20 (?)
5	C1 2354	15.1	20 (?)
6	BD +20° 2,465	15.5	20 (?)
7	BD +43° 4,305	15.7	20 (?)
8	CIN 2347	25.5	20 (?)

INNER PLANETS

Mercury

MERCURY is the planet closest to the Sun and the smallest. It was believed that the period of Mercury's rotation on its own axis corresponded with its period of revolution, like that of the Moon Recent radar readings, however, have shown that Mercury rotates on its own axis in 58.65 days, while it takes 88 days to complete one revolution round the Sun. This means that Mercury spins three times (3×58.65 days) for every two revolutions (2×88 days) round the Sun. The result is that when Mercury is in a most favorable viewing position, we see nearly the same face with the same markings This is how the mistaken notion arose that its period of rotation was the same as its period of revolution.

According to the famous astronomer Gerard Kupier, Mercury was probably twice as massive originally but the Sun evaporated away half its substances, The lighter, more volatile elements escaped, leaving a heavy planet, that is probably about 30 per cent silicates or rock and 70 per cent metals. It is 5¼ times as dense as water. Even today Mercury bathes constantly in the ferocious heat of the Sun. When it is closest to the Sun, temperatures reach 650°F on the equator though they probably drop during the long night to minus 300°F.

Astronomers have never seen Mercury really well, even though it is reasonably close to the Earth. The planet stays so close to the Sun in its tiny orbit, that to the naked eye, it is almost always lost in the Sun's glare. From the Earth, it can sometimes be seen for a short time as an *evening star* just after sunset or as a *morning star* just before dawn. But the Earth's thick, haze-and dust filled atmosphere on the horizon often blots it out

It is doubtful if Mercury has an atmosphere. With low gravity (one-third of the Earth's) and high temperatures, atoms and molecules of almost all gases, must have escaped into the interplanetary space leaving Mercury devoid of atmospheric gases.

Venus

Venus, the planet closest to the Earth, is also the brightest object in the sky, barring, of course, the Sun and the Moon. Named after the Roman goddess of beauty, Venus is popularly known as a star—as the Evening Star and the Morning Star. It is slightly smaller than the Eatrh, being some 300 miles less in diameter. It takes 224.7 days to complete a revolution round the Sun and 244 days to complete a rotation on its own axis. Venus, unlike most other planets, rotates backward The regular rotation of most of the planets, including the Earth is counter-clockwise or direct—in the same way as they revolve round the Sun, but the rotation of Venus is clockwise or retrograde that is, opposite to the way it revolves round the Sun. Because of the combination of this slow backward motion and the 225 days it takes the planet to make one orbit round the Sun, Venus sees the Sun rising in the west every 117 days.

Many of the popular notions regarding Venus have been radically altered by the space probes of Venera 4 (Oct. 1967), Venera 5 and 6 (May 1969), Mariner 2 (Dec. 1962) and Mariner 5 (Oct 1967) These probes have proved that Venus is a very hot planet -possibly the hottest of planets. Its temperature at the equator, may go as high as 1000° F. At such a temperature, lead, tin and zinc will melt and a number of compounds will vaporise. But at the top layers of Venusian clouds temperatures drop to minus 35°F. Here, we have a most interesting phenomenon-a red hot planet wrapped in clouds of ice, with freezing temperatures above and boiling temperatures below.

A curious feature of Venus discovered by the Russian Venus series 7 and 8 is that both the night and day temperature are nearly the same, This means that heat is being transported from the day side to the night side. Strong winds in the higher atmosphere seem to be the carriers of heat.

While the highest clouds on Earth seldom go above 10 miles, Venus has a thick layer of clouds, about 35 miles high. They block much of the sunlight. The result according to some scientists may be a murky twilight on the surface of Venus, more or less like living at the bottom of a dust storm or dense smog. The thick atmosphere, does more than block the sunlight. It traps the Sun's energy, and builds up a furnace-like heat. This is the well known 'green house effect'. Solar energy filtering through the clouds is absorbed by the surface and is re-radiated as longer wave length infra red rays. But the cloudy atmosphere of Venus acts like the glass roof of a green house, it blocks the infra red re-radiation from escaping into space. This is supposed to be one of the reasons, why Venns has turned out to be a very hot planet.

The surface of Venus, appears to be pock marked with craters., like that of the Moon or Mars This was brought out in an analysis made by the Jet Propulsion Laboratory (U. S). An area, some 900 miles wide, near the Equator of Venus is marked with a dozen or more craters,. These are very large craters, with diametres ranging from 21 to 100 miles There might be smaller craters, but they are not visible. The area is basically flat, no more than 3,300 ft. in altitude All the craters are shallow, compared to their area The 100 mile crater is only a quarter of a mile deep

The atmosphere of Venus is also uniqe consisting as it does, almost entirely of carbon dioxide (90-95 per cent). It has a pressure of a hundred terrestrial atmospheres (100 times the pressure of the Earth's atmosphere) This is equal to the pressure of water, more than half a mile under the sea

Venus has no satellites like Jupiter, no rings like Saturn and no ice caps like Mars. It has a very weak magnetic field 3/10,000th of the Earth's magnetic field and has no radiation belt like Van Allen Belt.

Earth (See The Earth)

Mars

Mars, named after the Roman god of War, is the fourth planet from the Sun. When Mars is favourably situated, it is brighter than most of the stars and is definitely red which has earned for it the surname Red Planet. It has a diameter of 4,220 miles, a little more than half of the Earth's. Its mass is about 1/10th of that of the Earth It follows an orbit, much more elliptical than the Earth's, with a mean distance of about 140 million miles from the Sun. Sunlight on Mars is therefore, less than half as strong as it is on the Earth and this makes, the planet much colder than the Earth Mars has polar caps similar to those of the Earth and because the Martian axis is tilted at almost the same angle as the Earth's its polar regions are exposed to sunlight in alternation, giving each hemisphere summer and winter. But Mars takes 687 days to orbit the Sun which means that its year is a little less than 2 earth years and that its seasons are nearly twice as long as those of the Earth.

The relative orbits of Mars and Earth bring them very close -a little more than 35 million miles—on two occasions about 2 years apart and then remove them far apart for another 15 years. In September 1956, Mars paid the second of the current series of close visits to the Earth and the third in 1971.

Mars caught the modern man's fancy, when an Italian astronomer Schiaparelli announced in 1877, that he had discovered canals on Mars. The American astronomer, Perceval Lowell, supported Schiaparelli and claimed that Mars was inhabited by intelligent beings. But the Mariner flights in 1964, 1969 and in 1971 have effectively disposed of these fanciful notions

Mariner 9

When Mariner 9 approached Mars in Nov. 1971, the planet was labouring under a dust storm, intense and widespread, lasting for some three months. The pictures that Mariner 9 has sent down, since the storm abated, have shown us a planet internally alive, more like the Earth than the Moon, with volcanoes, greater than any on Earth, canyons and dusty basins and jumbled uplifts and fractures.

Mightiest of the Martian mountains is *Nix Olympica* (the snow of Olympus) a volcanic mountain that embraces a vast caldera or crater 40 miles across. It is the highest point on Mars, standing some 15 miles above the plain, nearly three times as high as Mount Everest.

Mars is marred by a huge rift which cleaves the planet's equatorial zone for 2,300 miles. It is 20,000 feet deep and 75—150 miles wide This huge rift proves that the planet's interior is geologically alive.

Mars is a dusty planet, with the dust often in motion, driven helter-skelter by dust storms, which sometimes envelope the major portion of the planet in a dusty haze.

Mars must at one time have had meandering rivers like those on Earth, if the dry 'river beds' are any indication. Schiaparelli does not appear to have been just fanciful when he spoke of canals—for the sinuous channels seen on Mars are in all likelihood, "the beds of ancient rivers through which large amounts of water, once flowed". * But to-day liquid water does not exist on the surface of Mars. Yet there is much evidence that large amounts of water must exist inside Mars just as inside the Earth,

The Polar Caps of Mars resemble those on Earth; they wax and wane with the seasons. But these caps are a mixture of dust, ash, water ice and frozen carbon dioxide (dry ice —at least on the present evidence

Most biologists believe that if life exists on Mars, it will be primitive — micro-organisms or something like moss or lichens. But some believe in higher forms of life. Says Dr, Sagan, "There is no reason to believe or disbelieve that there are larger organisms on Mars. Mars has had 4½ billion years for independent evolution. Therefore, the Martian organisms, If any, are not like ours The slate is clear on that subject".

Mars has two small satellites, which have been named Phobos (Fear) and Deimos (Terror,) after the legendary attendants of the War God, Mars. They were discovered in 1877 by Asaph Hall. The Mariner 9 pictures of Phobos show it to be 20.8 km. wide by 24.0 km long., Of the 32 moons in the solar system, Phobos is the only one moving around its parent planet faster than the planet itself. It completes three trips—11 hours each—every Martian day (24 hours 40 minutes). Deimos, with a diameter of only 8 km requires only a few hours more to revolve around Mars than what Mars takes to rotate on its own axis. As opposed to Phobos, Deimos is a slow moon. Phobos would pass between Mars and the Sun about 1,400 times each year, while Deimos passes only 130 times. As seen from Mars, Phobos would appear to rise in the west and set in the east while Deimos does just the opposite

---

* Bradford A. Smith, Director of Planetary Research, New Mexico University.

OUTER PLANETS

Jupiter

JUPITER is the giant among the planets. Its mass is 71 per cent of the total mass of the planetary system. It has one and a half times the volume of all the other planets combined. Its mean diameter is about 11 times that of the Earth. It has a bulk 1,317 times as great as the Earth's and a mass 318.4 times that of the Earth. But its mean density is only one-fourth of the Earth's - a low value characteristic of all the Jovian planets.

Jupiter is more like a star, than a planet If it had been a little more massive, gravitational contraction would have released so much energy that the nuclear switch would have been turned on and it would have shone like the Sun or any other star. Being so nearly star-like, the planet gives off more energy than it receives from the Sun two or three times as much. No one knows the source of this internal energy. And through some mechanism yet unknown, Jupiter emits random bursts of intense radio energy at long wave lengths. It is the most powerful radio object in the sky, next only to the Sun. Apparently these radio emissions are related to the planet's powerful magnetic field and radiation belts.

Much of Jupiter's mass is made up of atmosphere, which is estimated to be some 25,000 miles deep. The atmosphere consists largely of hydrogen and helium which explains the low density of the planet, 1.34, roughly one-fourth of the Earth's density. Methane and ammonia which are formed when hydrogen joins with carbon and nitrogen respectively are also present in the atmosphere. Floating high in the atmosphere are enormous bands of pastel coloured clouds, thought to be composed of frozen and liquid ammonia, which, swirl about at whirlwind speeds. It is thought that Jupiter has the primordial atmosphere of the Earth - hydrogen, methane, ammonia and water from which life originated on Earth. It is quite possible that a similar process of life will have been started on Jupiter.

Infra-red radio meters have measured Jupiter's average temperature to be about 140° K.* (133° C below freezing point of ice) whereas; its largest satellite has a temperature of 128° K (145C .. The average temperatures on the night side and day side are the same This may show that the Jovian winds carry heat from the day side to the night side or that the planet is radiating internal heat to both sides.

What is at the core of Jupiter is not known. It is thought that it is made up of solid hydrogen When pressure rises above a mililon earth atmospheres, hydrogen atoms are crushed in such a way that their electrons are separated from their nuclei. In this state hydrogen behaves like a metal. It is denser than normal solid hydrogen and like most metals is a good conductor of electricity Jupiter's core is supposed to be made of this extraordinary stuff—a metallic version of an element known on Earth as the lightest of all gases.

The most conspicuous thing about Jupiter is its *Great Red Spot.* It was first noticed by Cassini in 1665 and observed continuously since 1872. It is a long oval area, somewhere in the south tropical region of Jupiter, some 8,000 miles broad and 25,000 miles long. The colour of the spot varies sometimes it is brick-red sometimes dull pink, at other times dull grey. It has a rotational speed of its own, four and a half miles slower per hour than its surrounding clouds. This Red Spot has not been satisfactorily explained so far.

One explanation offered is that the spot is caused by a topographical feature, either a rise or a depression on Jupiter's solid hydrogen surface. This might cover a large area but it need not be more than a few miles high or deep. As the planet rotates, the dense atmosphere flows around this feature and generates a column of relatively stagnant gas that extends upwards. This is called a Taylor Column The column reaches through the tops of the bright ammonia clouds, where it shows as the Red Spot.

---

* For K-scale, see *Temperature* in General Information.

Jupiter has 12 satellites—the biggest family of satellites of any planet. Of these four—*Io, Europa, Ganymede* and *Callisto*—called Galilean satellites*, are bigger than our Moon and the planet Mercury. These big satellites circle comparatively close to Jupiter, although one Callisto, is more than a million miles away. The other eight are smaller in size. The largest of these, *Amalthea* and *Hestia* have diameters less than 200 km. The four outermost satellites curiously enough, revolve round Jupiter from east to west, contrary to the motions of the great majority of satellites in the solar system and to the revolution of the planets around the Sun. One explanation of the retrograde motion of these satellites is that they were originally asteroids moving about between the orbits of Mars and Jupiter and that Jupiter's gravitational pull had drawn them up This is quite possible when we consider Jupiter's gigantic mass.

Saturn

Saturn is the outermost planet visible to the naked eye. It has a diameter of 75,000 miles and is at a mean distance of 887 million miles from the Sun It takes 29½ years to go round the Sun. Saturn's density is 0.69 less than that of water, so that it will float in water if a sufficiently big ocean could be found.

Till 1967, we could identify only 9 satellites of Saturn. A tenth satellite discovered in Jan. 1967 was named *Janus*. Janus is the satellite closest to Saturn. Of the ten satellites two are very large, one of them *Titan* being nearly 3,000 miles in diameter.

Titan is unique among the satellites, as it is the only satellite known, that holds an atmosphere. (See *Satellites* infra)

But the most remarkable feature of Saturn is its system of rings.

Saturn's ring system is divided into 3 main regions. The outermost ring, about 15,000 km wide is about 274,000 km in diameter. The middle ring is about 25,000 km wide. The outer and middle regions are separated by a dark region of about 5000 km. This division is known as the Cassini division. The third ring Crape Ring—is about 18,000 km wide, separated from the bright middle ring by about 150 km. The inner edge of this ring is some 10,000 km away from the visible disc of Saturn. Inside these, reaching almost to the surface of Saturn is a fourth ring, extremely faint, which was identified in 1969 by the French Scientist, Pierre Guirin. This, probably is not a ring, like the three major rings.

Till recently it was believed that the rings were made up of fine particles of dust and gas. Radar probe studies conducted by Dr. Richard, M. Goldstein and others at the Jet Propulsion Laboratory, Passadena, California, have shown that these rings are made of rocky material. Radar echoes bounced over a distance of over a billion km indicated that the material must be rocky, having diameters of the order of one meter or above. This conclusion is based on the high reflectivity of the rings for radar waves. If they were made of dust and gas, they would be quite transparent to the radar waves, with a consequent lowered reflectivity.

Saturn does not seem to possess a solid surface. This is deduced from the fact, that the radar waves sent up to Saturn showed no reflectivity. The surface of Saturn; however, is seen to change colour and on rare occasions it erupts with mammoth white spots.

Uranus

Uranus, at a distance of between 1,900 and 1,000 million miles from the Earth, is not visible to the unaided eye, but may be seen through good field glasses. It has five satellites, *Ariel, Umbriel, Titanita, Oberon* and *Miranda*. All of them are comparatively small

Uranus was identified as a planet in 1781 by William Herschell and has completed only two revolutions round the Sun since its discovery. This chill methane planet is 14½ times as massive as the Earth and has a temperature of about--170°C. It takes some 84 terrestrial years to circle round the Sun and its day is 10 hours 49 minutes The equator of Uranus is tilted at 98° out of the plane of its orbit with the result that it practically rolls on its sides as it revolves round the sun and exposes its polar regions (north and south) to whatever light and warmth the Sun gives in periods of 42 years each

Neptune

Neptune, between 2,900 and 2,700 million miles from the Earth is also visible through good field glasses It has two satellites one of which has a diametere of more than 2,000 miles.

---

* Galileo was the first man to discover them in 1610. They were later given their present names by Marius.

The planet was discovered in 1846, as a result of calculations made independently by two astronomers, Adams in England and Le Verrier in France. These calculations gave the position of an unknown planet, which was responsible for the perturbations in the motion of Uranus. The planet was found on 23rd Sept. 1846 in the indicated neighbourhood by Gotffried Galle of the Berlin Observatory.

It appears to be a pale green orb, no brighter than an 8th magnitude star and orbiting round the Sun once in every 165 years

Neptune has only two satellites *Triton** and *Nereid*. Triton goes round in a retrograde orbit, that is in the direction of Neptune's revolution

Pluto

Pluto, the outermost planet and removed from the Earth by a distance between 4,700 and 2,700 million miles is visible only through a telescope. This planet was finally located in 1930 after a long arduous search by C. W. Tombaugh at the Lowell Observatory, Arizona (USA).

Pluto is a tiny sphere, a little larger than Mercury and revolves eccentrically between 4,600 and 2,700 million miles from the sun. Its year is about 248 Earth years and its temperature round about—220°C. It has no satellites. Its orbit is interlaced with that of Neptune, bringing it as much as 34 million miles closer to the Sun than Neptune. This has led some astronomers to believe that it is "a run away" satellite of Neptune. An existing Neptunian satellite Triton, also appears to have escaped Neptune's hold in the first instance, but had been brought back into Neptune's fold. This is supposed to be the reason why Triton goes about in a retrograde orbit, opposed to that of Neptune Pluto appears to have been lost permanently. But who knows? Any gravitational aberration might bring it back to its mother planet—Neptune

SATELLITES

THE satellites revolve round their mother planets or primaries. Of the nine planets, Earth, Mars, Jupiter, Saturn, Uranus and Neptune are known to have satellites. Earth has only one satellite—the Moon. The Moon is unique in that it is the only satellite that has a size comparable to the size of the mother planet. It is about one-fourth of Earth's size. Other planets have much bigger satellites but they are very small in proportion to the size of their mother planets. Mars has 2 satellites, both of them infinitely small. The larger of them does not exceed 5 miles in diameter. Jupiter has 12 satellites, four of them very big with diameters ranging from 1,790 miles to 3,120 miles, but compared to Jupiter's huge mass, these satellites are small. The other 8 are minor satellites. Saturn has 10 satellites the largest of which is Titan. It is the only satellite that holds an atmosphere, but it is less than 1/20th of Saturn in size. Uranus has five satellites, the two largest (Titania and Oberon) having diameters of over 500 miles. Neptune has two, one of which (Triton) is over 2,000 miles in diameter, but it is less than one tenth of Neptune's size.

The list of satellites given below follow the order of their distance from their primaries. The numbers noted against names indicate their astronomical number. The letter (R) shows satellites that have a retrograde motion.

Table 14

Satellites

Satellite		*Average distance from planet (in miles)*	*Diameter (in miles)*	*Period of revolution around planet.* *days*	*hours*	*mins.*	*Discoverer and date*	
				Earth				
Moon		238,866	2,057.6	27	7	43	...	...
				Mars				
Phobos		5,825	10	...	7	37	Asaph Hall,	1877
Deimos		14,580	5	1	6	18	Asaph Hall,	1877
				Jupiter				
V	Amalthea	112,000	70	.	11	57	Edward Barnard,	1892
I	Io	261,900	2,020	1	18	28	Galileo,	1610
II	Europa	416,600	1,790	3	13	14	Galileo,	1610
III	Ganymede	664,660	3,120	7	3	43	Galileo,	1610
IV	Callisto	1,169,000	2,770	16	16	32	Galileo,	1610
VI	Hestia	7,130,000	50(?	251	...	..	Charles Perrine,	1904
VII	Hera	7,290,000	8(?)	260	...	.	Charles Perrine,	1905
X	Demeter	7,200,000	5(?)	254	...		Seth Nicholson,	1938
XII	Adrastea (R	13,000,000	4(?	625	...	...	Seth Nicholson,	1951
XI	Pan (R	14,300,000	6(?	714	...	..	Seth Nicholson,	1938
VIII	Poseidon (R)	14,600,000	9(?)	735	...	. .	P J Melotte,	1908
IX	Hades (R	14,700,000	6(?	758	...	. .	Seth Nicholson,	1914
				Saturn				
X	Janus	99,100	300		17	59	Audouin Dollfus,	1967
I	Mimas	115,200	400(?)		22	37	Sir William Herschel,	1789
II	Enceladus	447,700	500(?)	1	8	53	Sir William Herschel,	1789
III	Tethys	182,900	630	1	21	18	Giovanni Cassini,	1684
IV	Dione	234,300	550	2	17	41	Giovanni Cassini,	1684
V	Rhea	327,100	810	4	12	25	Giovanni Cassini,	1672
VI	Titan	758,400	2,980	15	22	41	Christian Huygens,	1655
VII	Hyperion	918,700	100(?)	21	6	38	G. P. & W. C. Bond,	1848
VIII	Iapetus	2,210,000	500(?)	79	7	55	Giovanni Cassini,	1671
IX	Phoebe (R)	8,040,000	100(?)	550	9	...	William Pickering,	1898
				Uranus				
V	Miranda	80,700	200(?)	1	9	56	Gerard Kupier,	1948
I	Ariel	119,100	500(?)	2	12	29	William Lassell,	1851
II	Umberiel	165,900	300(?)	4	3	28	William Lassell,	1851
III	Titania	272,100	600(?)	8	16	56	Sir William Herschel,	1787
IV	Oberon	363,900	500(?)	13	11	7	Sir William Herschel,	1787
				Neptune				
Triton (R)		219,500	2,300	5	21	3	William Lassell,	1846
Nereid		3,461,000	200(?)	359	10	...	Gerard Kupier,	1949

Note 1) Satellites are arranged in the order of their nearness to the Primaries.
2) (R)=Retrograde motion.

TITAN

Apart from the Moon, the only satellite that deserves our notice is Titan. Titan is the largest of Saturn's ten Moons 2,980 miles (4,500 km.) in diameter. In size, Titan is second only to Ganymede, (Jupiter's Moon) and is about the same size as the planet Mercury.

Titan is very bright, the brightest by far of the 32 Moons (including our Moon) in the solar system. Its extreme brightness is attributed to the fact, that unlike all other moons, it holds an atmosphere. But, how could Titan, hold an atmosphere with its low gravity? Dr. T. R. Mc Donough and Dr. N. M. Brice of Cornell University suggest that gases which escape Titan's gravity, are arrested and held by Saturn's high gravitational field even at Titan's orbit. The escaped gas of Titan, will therefore orbit the planet (Saturn) as an adjunct of Titan.

Another interesting point about Titan is that it is fairly warm. It is about 900 million miles away from the Sun and receives only one per cent of the light that the Earth receives. Yet, it is believed to have an atmosphere, similar to that of the Earth, billions of years ago. Infra red measurements by astronomers of the Cornell and Minnesota Universities show that Titan has a minimum temperature of 150 degrees above absolute zero, that is to say, about 90 degrees below zero Fahrenheit. While this is very cold, it is not much colder than the north pole in winter In such conditions life can appear. Says Dr Sagan of Cornell University, "Our research has shown, that at the very least. Titan should be littered with the kind of organic molecules, which in the early history of the earth led to the origin of life".

THE MOON

THE Moon is the only satellite of the Earth. But it is a satellite of distinction For, it is the only satellite in the Solar System, far too big to be a satellite. All other satellites have sizes ranging below 1/10th of the sizes of mother planets. But the Moon is about ¼ of the size of its mother planet, the Earth.

Origin of the Moon

The incompatibility of the relative sizes of the Earth and Moon, and their separate existence at such close quarters led to the conjecture that the Moon is not a true satellite but was captured by the Earth during a close approach to the Earth. This theory known as the *Spouse Theory*, states that the Moon came from elsewhere in the solar system and sweeping too near, it was snared by the Earth's gravity and "married" that is, locked into orbit The second theory known as the *Daughter Theory* says that the Earth once rotated so rapidly that it became blimp-shaped and was torn into two, the smaller blob, entering into orbit as the Moon. The third theory—the *Sister Theory*—suggests that the Earth and the Moon were formed more or less at the same time from the original wheeling cloud of cosmic gas that ultimately condensed into the planets and the satellites.

Dimensions

The Moon has a diameter of 2,159 miles as against the Earth's 7,900 miles. But it has a surface less than half that of the Atlantic Ocean. Therefore its gravitational pull is about one-sixth of the Earth's. The Moon's density is 3.3 compared to 5.5 of the Earth's. Because the orbit of the Moon about the Earth is not circular but elliptical, the maximum distance, (apogee) which the Moon may keep from the Earth is 2.52,710 miles and the minimum distance (perigee) 2,21,463 miles The mean distance of the Moon from the Earth is therefore placed at 2.38,855 miles. The Moon revolves round the Earth in 27 1/3 days (27 days 7 hours 43 minutes and 11.47 seconds) and rotates on its own axis in exactly the same time This is why we see only one side of the Moon.

Topography

The normal eyesight the near side (front side) of the Moon seems to be made up of bright and dark patches. the bright parts are the mountains and highlands that catch the Sun's rays, while the darker patches are low-lying plains. These were once thought to be seas (mares) and named accordingly, though the Moon is practically devoid of water. The craters are depressions caused by the onslaught of meteors. They vary in size. As if to make up for lack of oceans such as we have on Earth, the The Moon has raised high sharp-peaked mountains, many of them rising to 20,000 ft The highest of these are Liebnitz Mountains, near the Moon's south pole which rise to 35,000 ft. higher than Mount Everest.

The Moon, has no atmosphere, as its gravitational power is too weak to hold down gases. This causes many strange phenomena. There is no twilight, the day dawning suddenly, as there is no atmosphere to be lit up before the Sun comes over the horizon. There is no sound either, as sound is a vibration transmitted through air

Temperature on the Moon reaches extremes. During day time the temperature rises to 100°C, at night it comes down to minus 180°C

The Moon, along with the Sun is responsible for tides, Because of its proximity to Earth, the Moon exercises greater power over the tides. The ratio of lunar, and solar power in tide raising is 11 to 5 (See Tides --Hydrosphere).

APOLLO XI AND AFTER

Apollo XI which landed two men on the moon in July 1969 has blazed a new trail in men's exploration of space, It has enabled man to step on to the surface of the Moon—a possibility that the wildest legends of early times had discounted. USA has followed up this initial success by Apollo XII, Apollo XIV, XV, XVI and XVII.

Meanwhile, USSR has sent up the unmanned Luna 16 (Sept. 12, 1970) and Luna 17 (Nov 19, 1970) Luna 16 picked up Moon soil samples and returned to the Earth on September 24, 1970. Luna 17 carried the Moon buggy Lunokhod 1, which roved the surfaec of the Moon. It was an eight wheeled vehicle, which carried apparatus to study the lunar surface and radioed back the results to the Earth.

All these manned landings on the Moon and the investigations of the unmanned space-carft like the Lunas, haven't solved all the Lunar puzzles. The question ef the origin of the Moon and whether it is a daughter, sister or spouse of the Earth still remains unsettled.

However, the oldest rocks and soil samples brought back by the Apollo astronauts have shown that the Moon is about the same age as the Earth and was formed about 4,600 million years ago.

Apollo Discoveries

Among the 6 Apollo missions, that actually landed on the moon, the first two were confined to the maria or low lying portions and the others to highlands and areas of varied terrain like rills (narrow valleys). The Apollo missions have brought back nearly 800 pounds of lunar rocks, which are still being analysed and studied. Preliminary findings however shed a good deal of light on the evolution of the moon,

The most striking aspect of the moon's appearance is the abundance of craters on its surface. They range in size from circular basins 1,000 kilometers (about 620 miles) in diameter down to craters measuring less than a few meters or feet across. The majority of these craters have been produced by a continuous rain of meteorites over the eons. The moon's surface rocks also contain microscopic depressions ("zap pits") caused by the solar wind, cosmic particles, and micrometeorites, from which the earth is protected by its atmosphere.

The earth has also been subjected to meteoric bombardment but the erosive action of winds and water, volcanic activities and earthquakes have obliterated evidences of meteoric impact. Because these forces are absent on the moon's surface, the lunar surface has preserved a record dating back to the time of the Moon's formation. The oldest rocks on the Earth's surface go back only 3.5 million years, but some of the rocks picked up at Apollo lunar landing sites are more than four billion years old. It is assumed that after their original accumulation both the Moon and Earth were subjected to an intense meteorite bombardment, which resulted in the early melting of their surfaces.

Moon Rocks

The first landing sites (Apollo 11 and 12) were *mare* areas. The rocks from this area turned out to be basaltic lava, similar to volcanic rocks found on earth. The presenee of such rocks suggests internal melting, followed by extrusion of molten magma. Highland rocks also turned out to be igneous (melting) material of basaltic composition. The minerals in mare rocks consisted mainly of pyroxene and plagioclase feldspar which are also found in terrestrial basalts. Other minerals found were olivine, and ilmenite. The highland rocks showed slightly different composition. While plagioclase was the dominant mineral here also, pyroxene and olivine were greatly reduced, with ilmenite so scarce as to be considered a trace mineral.

A surprising finding was the occurance of a high percentage of titanium. While terrestrial igneous rocks contained only about 1 per cent of titanium the lunar rocks showed 10 times as much. A few minerals unknown on earth, were found in the mare basalts. Among these is *Armalcolite* a new name, derived from the names of the' astronauts Armstrong, Aldrin, and Collins and the name of the area Tranquillitatis.

The lunar rocks were bonedry. with no trace of water in any form. Neither did they contain any trace of any organic matter. So also, volatile elements (elements with low boiling points) like sodium, potassium, chlorine, germanium, lead and mercury were also practically non existent. The depletion of sodium and potassium is significant, because these two are among the most abundant elements found in terrestrial rocks

Age of the Moon

The oldest rock recovered from the Moon, was found at Descartes highland where apollo 16 landed. It is 4 25 billion years old. On our present evidence this may be taken as the earliest date on which the surface on the Moon solidified.

Highland rocks on the whole are older than the mare rocks. While the highland rocks range from 3.8 billion to 4.1 billion years, the mare rocks range from 3.1 billion years to 3 8 billion. It may therefore be assumed that for the first one and a half of the billion years of the Moon's history, extensive lava floods must have inundated the surface of the Moon. The age of the youngest rock—around 3 billion years—show that for the last 3 billion years, the Moon has been geologically dead.

Moonquakes recorded by seismometers left by the Apollo Missions, run into hundreds. Some are the results of meteor impacts, others are landslides of the inner slopes of craters. But many are true lunar quakes. The magnitudes of these quakes however go up only to 2 on the Richter scale with 1.5 the smallest tremour that can be left.

One peculiarity of these moonquakes is that they occur most often when the Moon approaches closest to the Earth. This means that the Earth's gravity exerts a forceful tidal pull on the Moon that causes the rocks in its interior to silp against each other and produce jarring vibrations.

The most striking aspect of the moonquakes is their deep origins. Most earthquakes occur within 100 km (62 miles) of the earth's surface, although a few go down to 700 km or 425 miles. Lunar quakes in comparison start in a zone, 800 to 1000 kms deep (500-620) miles.

The fact that moonquakes occur at depths greater than 800 kilometers implies that the outer 800 kilometers on the Moon constitute a thick shell of strong and rigid rock. If that is the case, we can understand why the moon does not show signs of recent geologic activity on its surface. Its outer casing of rigid rock, or lithosphere, may be so thick that it cannot break up into a number of separate plates that move against each other as the earth's plates do, with associated earthquakes, volcanic eruptions, the upwelling of magma, and mountain building. (See *Lithosphere* infra)

Deep moonquakes are not only much weaker than the average earthquake, they also occur far less frequently. The level of seismic activity on the moon in a year is less than one ten-billionth that of the Earth. Seismically, the Moon is an exceedingly quiet place

The evidence so far gathered shows that the Moon was hot and geologically active during the first 1.5 billion years of its existence. It is not known whether the entire moon was then molten, but at least a layer 200 to 300 kilometers thick near the surface must have melted in order to produce the rocks found there. Gradully the surface layer cooled, but at the same time the interior warmed up because of heat released by radio-active decay. Rocks in the interior melted and were extruded onto the surface in a series of lava flows. This melting effect lasted until about 3.1 billion years ago. Then the moon's interior cooled, and except at very great depths it has remained rather cold and geologically inert ever since.

Table 15

Constants of the Moon's Size and Motions

Synodic month (relative to Sun)	29.53059 days
Sidereal month (relative to stars)	27.32166 days
Tropical month (relative to equinox)	27.32158 days
Anomalistic month (relative to perigee)	27.55455 days
Nodal or draconic month (relative to node)	27.21222 days
Revolution of perigee (direct)	3232.6 days
Revolution of node (retrograde)	6793.5 days
Mean eccentricity	0.054900
Mean inclination of orbit to ecliptic	58′ 43′′
Inclination of Moon's equator to ecliptic	1.32′′′′
Lunar parallax	57.25′′′′
Mean distance from Earth	238,855 miles
Diameter	2,159.9 miles
Diameter in terms of Earths' diameter	0.27250
Mass in terms of that of earth	1:81.30
Density in terms of water	3.34
Density in terms of Earth	0.6058
Ratio of gravity to gravity at the Earth's surface	0.166
Maximum geocentric libration in longitude	7.54′′′′
Maximum geocentric libration in latitude	6.50′′′′
Fraction of Moon's surface always invisible	0.410

COMETS

THE word Comet is derived from the Greek *aster kometes* meaning long haired star. The long hair is the tail, which looks like hair blowing in the wind. The head or the coma is the star.

Superstitions

Comets have been associated with disasters from the earliest times. It is not known how comets alone of all astral bodies came to be treated as evil portents. Aristotle thought that comets came into being, when exhalations (gas) from the earth, rose high into the heavens, and were kindled to brightness by the Sun. The suggestion that comets were born of evil humours vapours) rising from the earth, probably generated and maintained the superstition that they were messengers of disaster.

In 79 AD when Vespasian was the Emperor of Rome, a comet appeared. Vespasian explained away its portentuous implications, as follows: "This hairy star does not concern me, it rather menaces the King of Parthia, for he is hairy and I am bald". But Vespasian's baldness did not help him. He died the same year

During the middle ages, the belief that comets presaged death and disaster gained firm ground. Tycho Brache, the Danish astronomer studied the comet of 1577 and showed that the comet was far away, farther away than the Moon, and had nothing to do with earthly vapours or earthly atmosphere. But Tycho's scientific deductions did not allay men's supertitious fears one whit. Edmund Halley, the British astronomer was the first person, who succeeded in inducing a change of mind. He explained the orbits of comets and predicted the re-appearence of his (Halley's) comet, 76 years after In 1835 when Halley's comet returned as predicted, much of the superstitions attached to comets disappeared. As the twentieth century opened, comets ceased to be terrorsome and became objects of scientific investigation and research

Origin

There are two schools of thought regarding the origin of the comets. One school holds that the comets are made of the primeval material, from which the solar system condensed. They have their home in the cold outer fringe of the solar system, millions of miles away from the outermost planet. In this cold, dark domain, where the Sun looks on brighter than a distant star, millions of cometary nuclei are congregated. Most of them are a mile or so in diameter, though some may reach diameters of 50 miles or more. Here, the comets are non-luminous and have no tails and move slowly in enormous orbits around the far distant Sun. But now and then, gravitational changes, eg. the gravitation of the stars they pass by, shake out some comets from their slow orbits. Some of these move out into the interstellar space and are lost to the solar system. Others veer towards the Sun, eventually to become, the brilliant long-tailed comets that we see from the Earth.

The other school believes that comets are freshly formed, from the material attracted by the Sun, when it enters a cloud of gas. These clouds of gas are known to exist in the inter-stellar space and the Sun in its circuit round the galaxy, may enter many of these cloud formations. The material thus attracted by the Sun finally condense to form the comets. It is quite possible that both these theories are correct. Comets may be formed in frozen outskirts of the solar system or from gas clouds. Evidently, comets formed on the outskirts, will have formed an earth-like core, that resists the dissipating activity of the Sun. But comets born of gas clouds, are likely to lose their entire substance as they go past the Sun

Orbits

A comet may have three kinds of orbits. If the comet approaching the Sun, does not have enough speed, to overcome the Sun's gravity, it will settle down in an elliptical orbit, like our earth. A comet which has just enough speed to overcome the Sun's gravity will take on a parabolic orbit. If a comet is fast enough to overcome the Sun's attraction, it will describe a hyperbolic orbit and escape into the inter stellar space.

Comets that keep re appearing in the solar system are said to have periodic orbits. As they come near the Sun, they whip around it at enormous speeds aud shoot away from the Sun, with their tails pointing ahead. The periodic comets are divided into two categories, the short period group and the long period group. The short period groups has periods of less than 100 years each-about half of them have periods below ten years. The long period groups have periods of over 1000 years.

The known periods of comets vary from 3.3 years for Enacke's comet to thousands of years for comets with longer orbits: Halley's comet named after the English astronomer Edmund Halley, reappears every 76.3 years. The great comet of 1811 comes back once in 3,000 years, the comet of 1844 in something more than 100,000 years, while the comet of 1864 takes as much as 2,800,000 years to return.

Structure

Structurally, a comet consists of three parts; a nucleus, a head and a tail. The nucleus is a tiny object, only a few kilometers in dimension. It is made up of ices of various compounds like ammonia, water, dust and larger particles. It reflects sunlight and appears as a bright spot in the centre of the head. The head is comparatively big extending up to a million kilometers. It is made up of gas and microscopic dust particles. The tail, which is the distinguishing feature of the comet, is much larger than the head, extending to a length of 20 to 30 millon kilometers.

The comet does not possess its typical head and tail, when its far away from the Sun. The head appears when it comes near Jupiter's orbit, and the tail developes when it crosses the orbit of Mars The evaporation of the solid ice material around the nucleus, when the comet approaches the Sun is responsible for the appearance of the head. At the same time, solar wind is driving away the gaseous matter attached to the head. This explains the streaming tail.

It is estimated that the solar system may contain as many as 120,000 comets. There can be many more, which execute their orbits outside the solar system and are therefore not observable by us.

We have so far discovered about 1,000 comets. On an average, about half a dozen new comets are discovered in an year. In certain years, we happen to discover more than a dozen. In 1932 and 1947, we discovered 13 comets in each year or a total of 26 for both the years together.

Table 16

Some Famous Comets

Year and No.	*Name of Comet*	*Period, Years*
1744	De Cheseaux's Comet	—
1806	Biela's Comet	6.7
1811 I	Great Comet of 1811	3000
1812	DiVico's Comet	70.7
1815	Olber's Comet	74 0
1819 I	Encke's Comet	3.3
1819	Pons Winnecke Comet	6.0
1835 III	Halley's Comet	76 6
1843 I	Great Comet of 1843	512,4
1844 II	Great Comet of 1844	102·050
1858 VI	Donati's Comet	2,040 (?)
1864 II	Great Comet of 1864	2,800,000
1871 III	Tuttle's Comet	13.8
1874 III	Coggia's Comet	6,000 (?)
1879	Brorsen's Comet	5.6
1881 II	Tebbutt's Comet	—
1889 VI	Swift's 2nd Comet	7.0
1892 III	Holme's Comet	6.9
1911 IV	Halley's Comet	76·3
1923 ,,	d'Arrests' Comet	6.6
1925 II	Comet Schwassmann-Wachmann	16 2

Kohoutek

Comets are named after their discoverers. The latest comet, Kohoutek was discovered on March 7, 1973 by Lubos Kohoutek at the Hamburg Observatory in West Germany. This was discovered by accident. Lubos was looking for a minor planet, when he spotted this comet at a distance of 442 million miles from the Sun It was a relatively bright object, when first noticed.

Calculations showed that it would be at its brightest when it came closest to the Sun on Dec. 28, 1973. After having rounded the Sun, it will come closest to the Earth, (about 120 million kilometres) on Jan. 15, 1974.

The comet was expected to be so bright, that it was described as 'the comet of the century'. Its brightness was variously estimated. "As bright as Venus", said some. "About equal to that of Jupiter" said aothers. Kohoutek however proved a flop, in brightness. It faded rapildy as it rounded the Sun. It is not known exactly why it faded. Astronomers think that it sometimes happens that way. The comet of 1897 (also a new comet then) they point out, similarly faded.

Kohoutek appears to be a new comet that has entered the solar system for the first time.

Kohoutek, as as it approached the Sun, generated rodio signals whi2h revealed that molecules of methyl cynaide (CH_3 CN and hydrogen cyanide (HCN) were) present in the head. "These substances never before found in a comet are known to occur in dense clouds in the interstellar space of our Milky Way galaxy, where the new stars and solar systems are thought to be forming. Thus Kohoutek, might truly be a sample of the primordial material from which our Sun and Earth itself was born"*

Dead Comets. Every time a comet passes near the Sun, it loses some matter which cluster together in space. The gas and dust escape first, leaving the solid core of the head. Sometimes, the core itself disintegrates leaving a stream of small particles that gradually spread out in space. Every year the Earth passes through several clusters of these cometary fragments or cometary material, whose broken pieces shine briefly as shooting stars in the night sky. (See Meteors). Sometimes the head escapes disintegration. It will then resemble a small asteroid Some astronomers think that many of the asteroids are made up of such dead comets

---

* Stephen. P. Maran, Manager of NASA'S · *Operation Kohoutek* in *Natural History* Magazine, Magazine, March, 1974.

ASTEROIDS

THE *asteroids* also called *planetiods* are swarm of tiny planets, revolving round the Sun, mostly between the orbits of Jupiter and Mars. This region is called the asteroidal belt and extends from 2.4 to 3.6 A U (Astronomical Unit). Their total number is estimated to be between 40,000 and 50,000. They are probably nothing more than masses of rock revolving round the Sun,

In 1801 an Italian, Giuseppe Piazzi, discovered a star-like body beyond the orbit of Mars where a 'missing planet' was supposed to be located. Named *Ceres*, it proved to be the first and largest of the asteroids Ceres, an airless lifeless ball, 485 miles in diametter, is large enough to be called a planet and so are a few others later discovered—*Pallas, Vesta, Juno, Hebe* and *Iris*. But the great majority are irregular chunks, around a mile or so in diameter.

The first ten asteroids discovered in the first half of the 19th century are also the biggest. New asteroids are being discovered every day. The new asteroids are given permanent numbers and usually also named, by a central authority. now at the Cincinnati observatory, USA. As on 1st Jan. 1973, 1813 objects have been counted in the asteroidal belt and their numbers assigned (*Science Today*, Aug, 1973). Many bear mythological names. Others are named in honour of astronomers, *Kepler* and *Hale* for example. One is named *Geographus*, after the National Geographic Society. Other names include those of flowers (*Crocus* and *Begonia*); of cities (*Yalta* and *Chicago*); and women (*Sheba, Dulcinea* and *Marlene*). At present. there are about 2,000 numbers listed and dozens are being added every day. In spite of their numerical profusion, the total mass of all the asteroids does not come to one thousandth of the Earth's.

The average time taken by these asteroids to revolve round the Sun, may be put down as $4\frac{1}{2}$ years. But there are many deviations, as the orbits of these asteroids vary from near circles to highly elongated ovals or ellipses. *Hidalgo*, one of the asteroids takes as much as 14 years for its revolution round the Sun. It not merely crosses the orbits of Jupiter and Mars, but also travels out as far as Saturn's orbit. *Apollo*, *Adonis* and *Hermes* fall within the orbit of Venus *Eros* and some others cross the orbits of Jupiter and Mars.

Asteroids in their erratic circuits round the Sun, sometimes come dangerosly close to the Earth. The asteroid *Icarus*, for example, a lump of rock almost a mile in diameter, swings out 183 million miles from the Sun, but every 409 days, it comes within 17 million miles of the Sun, and gets burnt red-hot. Now and then, however, it veers towards the Earth. When it was first discovered, in 1949, it came within 4 miliion miles of the Earth In June, 1968, it repeated the performance. Another asteroid *Hermes*, only 1,000 ft. across, passed within 485,000 miles off the Earth in 1937 In 1969 August, *Geographus* a curious cigar shaped rock about 2½ miles long and half a mile wide -discovered in 1951—came within 5.6 million miles from the Earth. Happily, none of these visiting and very often menacing asteroids, have collided with the Earth, so far.

Table 17

First Ten Asteroids

	Name	*Year of Discovery*	*Mean distance from Sun (million miles)*	*Orbital period (Year)*	*Diameter (miles)*
1	Ceres	1801	257.0	4.60	485
2	Pallas	1802	257.4	4.61	304
3	Juno	1804	247.8	4.36	118
4	Vesta	1807	219.3	3.63	243
5	Astrea	1845	239.3	4.14	50
6	Hebe	1847	225.2	3.78	121
7	Iris	1847	221.4	3.68	121
8	Flora	1847	204.4	3.27	56
9	Metis	1848	221.7	3.69	78
10	Hygeia	1849	292.6	5.59	40(?)

METEOROIDS

METEORIDS are lumps of solid matter that cross the inter-planetary space in endless numbers. The term 'meteoroid' is a general term, that includes *meteors fireballs*, *meteorites* and *micrometeorites*. Meteoroids are usually very small in size, considerably smaller than the asteroids. Their source is not exactly known. It is thought that they are broken pieces of comets or bits of disintegrated asteroids.

Meteors, commonly known as 'shooting stars' are meteoroids that pass through the atmosphere and become hot enough to emit light. They are heated as they pass through the air by a process of compression. Unconfined (free) air cannot move faster than the speed of sound, while meteoroids tear through it at 30 to 60 times the speed of sound. This naturally causes compression of the surrounding air, which gets heated. Much of this heat is absorbed by the passing meteoroids which shine as meteors or shooting stars.

Meteor showers. These are supposed to be fragments of comets. They come down in clusters and get burnt out in the atmosphere thus giving the appearance of a shower In 1964, the comet Giacobini-Zinner passed close to the Earth missing a collision by about ten days. The Earth, however, passed through the broken fragments of the comet, with the result that the sky teemed with shooting stars Meteor showers, that recur periodically are apparently remnants of disintegrated comets. The Perseid shower which occurs annually in August is taken to be remnants of Tuttle's comet, first discovered in 1871. The Leonid shower which falls every 33 years is suspected to be fragments of Temple's comet. The Leonid shower of 1833 is the greatest meteor display we have so far seen

Fireballs, so called are exceptionally bright meteors. Some think, that fireballs have a different origin from that of the ordinary shooting stars. They are supposed to come from the belt of asteroids.

Meteorites. Every day millions of meteoroids pass into our atmosphere but not more than one or two a day, survive the compression and strike the earth as meteorites. The rest are burnt up in the atmosphere or reduced to meteoric dust. The largest meteorite known is imbedded in the ground near Grootfontein in S.W. Africa. It is estimated to weigh 70 tons. The second largest, weighing some 34 tons was recovered by Admiral Peary from Greenland. It is now on exhibit at the Hayden Planetarium in New York Though no meteorite larger than the Grootfontein is known to exist, the Earth must have been struck by bigger meteorites. This is evidenced by large meteoric craters, that exist today. The largest of such craters, known is at Lac Couture, Quebec, which is more than 9 miles across The crater lies submerged in a lake.

Composition of meteorites. Meteorites are broadly divided into three groups, which differ widely in both appearance and properties (1) Stones or *Aerolites* (2) Iron or *Siderites* and (3) Stony-irons or *Siderolites*. The chief elements in stone meteorites are oxygen, silicon, iron, magnesium, aluminium, calcium, sodium, sulphur and nickel. Iron meteorites are practically an alloy of iron, nickel (7 to 8%) and cobalt (about 0.5%). Graphite, iron sulphide and phosphorous are also found in varying quantities in iron meteorites. Sometimes, even diamonds are found. The stony iron meteorites contain besides iron and nickel, a number of silicon minerals, in varying proportions.

Most of the meteorites found, are *iron* meteorites, that is to say, they are mainly composed of iron, though nickel ranging round about 7 per cent is noticed in them.

Micrometeorites. The smallest meteoroids are called micrometeorites. They are so small, that they do not become incandescent by compression and drift slowly down to the Earth in their original forms. Huge quantites of this meteoric dust fall on the Earth year after year. It is estimated that meteoric dust falling on the Earth will add up to more than 2 million tons of dust every year.

Tektites are believed to be extra-terrestrial material and are therefore classed with meteorites. They resemble glass pieces. Usually about the size of ordinary gravel, tektites are found in widely separated regions of the world known as 'skewn fields'. Chemically they resemble nothing on Earth but their most interesting feature is that they appear to have had fiery high speed journey through our atmosphere. Their surfaces are etched and pitted by atmospheric friction by a process called *ablation*. The exact source of these tektites remain unknown.

Do meteorites carry life? The idea that meteorites contain only inanimate matter, like iron, nickel, silicon and the rest, has recently been questioned by many scientists. In 1961 Bartholomew Nagy, a Hungarian scientist working at Fordham University, New York made the startling announcement, that a piece of meteorite found in France, contained five types of highly complex molecules, some of which resembled the spores of algae. This meant that living organisms were present in the meteorites. This discovery sent scientists all over the world on a closer scrutiny of meteorite compounds. The Russian scientists, claim that they have discovered organic matter in a meteorite collected from Siberia, while an American scientist Frederick Sisler claims that he has isolated bacteria from meteorite compounds—bacteria which appear to be quite unlike any that have yet been discovered on Earth. Do meteorites function as carriers of inter-planetary life? We have yet to know.

Phone calls by Satellite shoot up

International Telephone traffic from India has recorded a massive growth of 250 per cent within the first year of introduction of satellite services.

An official survey of 25 years of phenomenal progress by the Overseas Communications Service shows that 90 per cent of all telephone calls from India now flow on satellite channels. The remaining ten per cent is on VHF (very high frequency) Radio.

P. T. I. 14 Oct., 1972

MANNED FLIGHTS

1961 April 12 **Vostok I.** Yuri Gagarin makes man's first space flight. 1 hr. 48 mins. (USSR)

Aug. 6 **Vostok 2.** Gherman Titov. 16 orbits. 25 hrs. 18 mins (USSR)

1962 Feb. 20 **Mercury-Atlas 6.** John Glenn. 3 orbits. 4 hrs. 55 mins. First American in orbit, (USA).

Aug. 11 **Vostok III.** Andrian G. Nikolayev. 60 orbits. 94 hrs, 22 mins First group flight (Vostok III and IV) (USSR).

Aug. 12 **Vostok IV.** Pavel R. Popovich. 45 orbits. 70 hrs. 57 mins. Came within 3.1 miles of Vostok III on first orbit. (USSR).

Oct. 3 **Mercury- Atlas 8.** Walter M. Schirra. Jr. 6 orbits, 9 hrs. 13 mins. Landed 5 miles from target (USA)

1963 May 15 **Mercury-Atlas 9.** L. Gordon Cooper, Jr. 22 orbits, 34 hrs 20 mins First long flight by an American (USA).

June 14 **Vostok V.** Valery F. Bykovsky 76 orbits, 119 hrs. 6 mins. Second group flight (Vostok V and VI) (USSR).

June 16 **Vostok VI** Valentina V. Tereshkova. 45 orbits, 70 hrs. 50 mins. Passed within 3 miles of Vostyk V. First woman in space (USSR).

1964 Oct. 12 **Voskhod I.** Vladimir M. Komarov, Konstantin P. Feoktistov Dr Boris B. Yegorov. 15 orbits, 24 hrs. 17 mins. First three man craft (USSR).

1965 Mar. 18 **Voskhod II.** Aleksei A. Leonov, Pavel I. Belyayev 16 orbits 26 hrs. 2 mins. First man outside spacecraft in 10 minute "walk" (Leonov) (USSR).

Mar. 23 **Gemini 3.** Virgil I. Grissom, John W. Young. 3 orbits. 4 hrs 53 mins. First manned orbital manoeuvres (USA).

June 3. **Gemini 4.** James A. McDivitt, Edward H. White II. 62 orbits. 97 hrs. 48 mins. 21 minute "space walk" (White (USA).

Aug. 21 **Gemini 5.** L. Gordon Cooper, Jr. Charles Conrad, Jr. 120 orbits. 190 hrs 56 mins. First extended manned flight (USA).

Dec. 4 **Gemini 7.** Frank Borman, James A. Lovell, Jr. 206 orbits, 330 hrs. 35 mins Longest space flight at the time (USA).

Dec. 15 **Gemini 6-A.** Walter M. Schirra, Jr. Thomas P. Stafford 16 orbits. 25 hrs. 52 mins World's first successful space rendezvous (USA).

1966 Mar. 16 **Gemini 8.** Neil A. Armstrong, David R. Scott. 6.5 orbits 10 hrs. 42 mins. World's first docking (to Agena target). mission cut short (USA

June 3 **Gemini 9-A.** Thomas P. Stafford, Eugene A Cernan. 44 orbits. 72 hrs 21 mins Rendezvous, extra vehicular activity, precision landing (USA

1966 July 18 **Gemini 10.** John W. Young, Michael Collins. 43 orbits. 70 hrs 47 mins. Rendezvous with 2 targets: Agena package retrieved (USA)

Sep. 12 **Gemini 11.** Charles Conrad Jr. Richard F. Gordon. Jr. 44 orbits. 71 hrs 17 mins. Rendezvous and docking (USA):

Nov 11 **Gemini 12.** James A. Lovell, Jr, Edwin E. Aldrin, Jr. 59 orbits. 94 hrs. 33 mins. Three successful extra-vehicular trips (USA).

1967 April 23 **Soyuz I.** Vladimir M. Komarov. 17 orbits. 26 hrs. 4 mins Heaviest manned craft. crashed, killing Komarov (USSR).

1968 Oct. 11 **Apollo 7.** Walter M. Schirra Jr., Donn F. Eisele, R. Walter Cunningham 163 orbits. 260 hrs. 9 mins. First manned flight of Apollo spacecraft (USA).

Oct. 26 **Soyuz III.** George T Beregovol. 60 orbits. 94 hrs. 51 mins. Rendezvous with unmanned Soyuz II (USSR).

Dec. 21 **Apollo 8.** Frank Borman, James A. Lovell, Jr., William A. Anders Moon orbital(10 revolutions)

147 hrs. First manned voahge around Moon (USA).

1969 Jan. 14 Soyuz IV. Vladimir A. Shatalov. 45 orbits. 71 hrs. 14 mins. Rendezvous with Soyuz V. (USSR).

Jan. 15 Soyuz V. Boris V. Volyanov, Aleksei S. Yeliseyev, Yevgeni V. Khrunov. 46 orbits. 72 hrs 46 mins. Rendezvous with Soyuz IV; Yeliseyev and Khrunov transfer to Soyuz IV (USSR).

Mar. 3 Apollo 9. James A. Mc Divitt, David R. Scott, Russell L. Schweickart. 151 orbits. 241 hrs. 1 min. First docking with Lunar Module within Earth's atmosphere (USA).

May 18 Apollo 10. Thomas P. Stafford, Eugene A. Cernan, John W. Young. Moon orbital (31 revolutions). 192 hrs 3 mins. Descent to within 9 miles of Moon (USA).

July 16 Apollo 11. Neil A. Armstrong Edwin E. Aldrin, Jr., Michael Collins. Moon orbital for Command Module (30 revolutions). 195 hrs. 18 mins. Armstrong and Aldrin, in Lunar Module, land in Sea of Tranquillity. Collins remained in lunar orbit in Command Module. Remained on Moon for 21 hrs. 36 mins. (USA).

Oct. 11 Soyuz VI. Georgi S. Shonin, Valery N. Kubasov. 79 orbits. 113 hrs 42 mins Welding of metals in space (USSR)

1969 Oct. 12 Soyuz VII. Anatoly V. Filipchenko, Vladislav N. Volkav, Viktor V. Gorbatko. 79 orbits. 118 hrs. 41 mins. Tests for building an orbiting space laboratory (USSR).

Oct. 13 Soyuz VIII. Vladimir A. Shatalov, Aleksei S. Yeliseyev. 79 orbits. 118 hrs. 41 mins. Test for building an orbiting space laboratory (USSR).

1969 Nov 14 Apollo 12. Charles Conrad, Jr.. Alan L. Bean, Richard F. Gordon Moon orbital for Command Module (45 orbits). 244 hrs. 36 mins. Conrad and Bean in Lunar Module, land in Sea of Storms. Gordon remained in lunar orbit in Command Module (USA).

1970 Apr. 11 Apollo 13. James A. Lovell, Jr, Fred W. Haise, Jr., John L. Swiget Jr,, Swung around Moon, then returned to Earth. 142 hrs. 52 mins. Power failure en route to Moon prevented the scheduled lunar landing by Lovell and Haise (USA).

June 1 Soyuz IX. Adrian G. Nikolayev, Vitaly I. Sevastyanovo 287 orbits. 424 hrs. 59 mins. Longest space flight to date, planned to study physical reactions, (such as prolonged weightlessness) to extended space travel (USSR).

1971 Feb. 2 Apollo 14. Alan B. Shepard, Stuart A. Roosa, Edgar D Mitchell. Shepard and Mitchel, in Lunar Module, land in Fra Mauro area. Roosa remained in lunar orbit in Command Module (USA).

1971 April 19 Salyut 1. Unmanned space station launched into orbit. Soyuz 10, transport craft carried cosmonauts, Vladimir A Shatalov, Aleksei S Yeliseya and Nikolai N Rukhavishnikov. Soyuz 10 linked with Salyut 1 after 32 orbits. the mission was abandoned.

1971 June 6 Soyuz XI. Georgi T Dobrovolsky, Vladislav N Volkov, Viktor I, Patsayev. 360 orbits, 276 hrs. Soyuz XI spacecraft docked with the Salyut space station, which was orbited on April 19. The cosmonauts orbited in Salyut for 23 days and were found dead on returning to Earth on June 30 (USSR).

July 26 Apollo 15. David R Scott, Alfred M. Worden, James B. Irwin. Moon orbital for Command Module (74 orbits) 295 hrs. 12 mins Scott and Irwin, in Lunar Module, landed in Hadley Rille area and explored region in Lunar Rover. Worden, from Command Module, performed Lunar orbital experiments and the first deep space walk (200,000 miles from earth) (USA).

1972 April 16. Apollo 16 launched. Command ship: *Casper*. Moon landing craft: *Orion*. Astronauts: *John W. Young* (Commander), *Charles M. Duke (Jr.)* (Lunar Module Pilot), Thomas K. Mattingly (Command-ship Pilot). Landing site: *Descartes Highland Region*. On April 21, Young and Duke stepped on to the surface of the Moon at 10.25 and 10.30 p. m. I S T. respectively.

They stayed on the Moon for a total of 73 hours and took three driving excursions, in the 1972 sports model car, they had taken along with them. They left the Moon on April 25. On April 26, at about 300,000 km. from the Earth, Mattingly walked in space to collect film canisters and expose a container of some 60 million bacteria and viruses to solar radiation. They splashed down in the Pacific on April 28 (USA).

A sub-satellite. Apollo XVI sent a scientific satellite—a sub-satellite weighing 14 kg into orbit round the Moon on April 25. This is a twin of the earlier sub-satellite deployed by Apollo XV in August 1971. The sub-satellite's sensors are powered by solar cells that convert sunlight into electricity. It is expected to send data down to the Earth for a year (USA).

1972 Dec. 7 Apollo 17 launched Command ship: *America*. Lunar Module: *Challenger*. Crew: *Eugene A. Cernan, Harrison H. Schmitt* (geologist), *Roland Evans* (Captain, Command ship). Landed in Taurus-Littrov Valley, 11th Dec. Returned, 19th Dec. 1972. (USA).

1973 Jan. 8. Luna 21* sent to the Moon. It landed Lunokhod II* on the Moon on Jan. 16. It was frozen by the intense cold on Jan. 4 and was reactivated by radio communication from the earth on 7th April (USSR).

1973 April 3. Salyut 2. Unmanned space laboratory launched. Reported to have completed its programme on April 28 (USSR).

1973 May 24. US launched its first space station, skylab. The skylab is the largest space craft, so far launched. It is 25 metres long, and 6.5 metres at its widest, with a habitable interior of 322 cubic metres. This 85 ton space craft orbits the earth, once in every 93 minutes or about 15½ times each day at an altitude of 435 km.

Fisrt crew: Commander Charles Pete Conrad (Jr), Joseph P. Kerwin (Doctor) and Paul J. Weiz, pilot, were sent up on a saturn rocket on May 24. They stayed for 28 days and were mostly occupied with repairs to the skylab They returned to earth on June 22 (USA).

1973 July. *The second crew* to stay up in the Skylab for 56 days were Alan Bean, Commander, Dr Owen Garriot and Jack Lousma. A Saturn rocket took them to the skylab on July 28. Jack Lousma and Dr. Owen Garriot had six and a half hour space walk—the longest yet in orbit—trying to set aright the sunshade sail checking for leaks, repairing a short circuit and putting films in the Sun telescope camera.

1973 Nov. 16. A *third batch* of astronauts, Gerald P. Carr, Commander, Edward Gibson, Science pilot, and William R Pogue, pilot reached skylab on Nov. 16 and stayed there for nearly three months—84 days, 1 hour and 16 minutes. They returned to earth by Apollo on Feb. 8, 1974.

The three skylab flights were the 28th, 29th and 30th manned flights of USA. By 1974, US. had sent up 41 men into space, three of them, including Conrad, four times, four of them 3 times, ten of them, including Bean, twice and the other 24 once.

1974 June 25. Salyut 3, a new unmanned space station was sent into orbit, between 270 and 219 km. of the earth. (Salyut 2 launched in 1973 was crippled after 26 days.)

1974 July 3. Soyuz 14 carried cosmonauts Pavel Popovich and Yuri Artyukhin to Salyut 3. They stayed it Salyut 3 for 15 days and returned to earth on 19th July.

1974 Aug. 27. Soyuz 15 took a new batch of cosmonauts, Lieut. Col. Gennady Sarafanov (32) and Flight Engineer, Lev Demin (48) to Salyut 3 Soyuz 15 was to have docked with the orbiting Salyut 3. But the cosmonauts could not dock it. They came back to earth on the 29th Aug. (USSR).

---

* Luna 20 reached the moon on Feb. 4, 1972 and returned to Earth on Feb. 25.

** Lunakhod I, landed on Nov. 17, 1970. Its batteries gave out after 10 months and 17 days.

PART II

THE WORLD

THE EARTH
LITHOSPHERE
HYDROSPHERE
ATMOSPHERE
BIOSPHERE
EVOLUTION
DESCENT OF MAN
BEGINNINGS OF CIVILIZATION
FIRST GREAT CIVILIZATIONS
RELIGIONS
LANGUAGES
MINERAL WEALTH
POPULATION AND FOOD
(See Special feature)
WORLD ORGANISATIONS
COUNTRIES OF THE WORLD
DEPENDENCIES
HEADS OF STATE

THE EARTH

Origin of the Earth

The first accounts of the origin of the Earth stemmed from religious mythology. Every religion had its own story, but all these stories agreed that supernatural powers created the earth and heaven from unorganised matter or chaos. The Egyptians thought that the Sun god Ra spoke at the beginning of creation and bade the earth and heaven to rise out of the waste of water. The Babylonians believed that the god Bel-Merodach, slew the female dragon Timiat (the Sea) and covered the heavens with one part of the body and fashioned the Earth with the other. Then he set the Moon and stars in the sky and afterwards created man. According to the Old Testament (Bible), the common heritage of the Jew, the Christian and the Muslim, God (Jehovah) first created light, then, matter of all sorts and living organisms of different types, and ultimately, man. The sun, moon and stars were ordained to provide light for the earth and man

Scientists on the other hand, have attributed the origin of the Earth to natural phenomena. As early as 1755, the German philosopher Kant suggested that the Earth and other planets were condensed from a rotating nebula of hot gas concentrated in the Sun. This theory known as the *nebular hypothesis* was supported by the great French mathematician Laplace in 1796. About 1900, a second theory, advanced by two American astronomers, Chamberlin and Moulton of Chicago University suggested that another star passed by the Sun and pulled out material that later condensed into planets. The latest theory, proposed by a German scientist Von Weizacher and an American astronomer Kupier is really a restatement of the nebular hypothesis. It says that the entire solar system originated from a massive wheeling cloud of gas and dust, some six billion years ago. The central mass of this rotating disc of gas formed the Sun, which because of its intense pressure and temperature produced light, heat and other radiation through nuclear reaction. The clouds on the periphery of the central mass (Sun), condensed to form the planets and other heavenly bodies—all of which were held together by the gravitational pull of the Sun

The Age of the Earth

It is only during the last two centuries that the question of the age of the Earth was taken up scientifically and investigated. Until then calculations were arbitrary and depended more on imagination than on material evidence. Naturally, the calculations differed widely. Thus, an old Russian calendar, put down the age of the Earth at a mere 2,000 years According to a Hindu calculation, mentioned by Prof. Arthur Holmes, the Earth is 2,000 million years old. In 1615, James Ussher, an Irish Bishop, calculated on the basis of the Bible, that the Earth was created in 4004 BC and fixed the time, precisely at 9 a.m. on Sunday, October 23,* 4004 BC.

Speculations thus went on, until geologists took up the matter. According to their calculations, the age of the Earth may be put down at around 4,500 million years

Earth and the Solar System

The ancient thinkers, generally believed that the Earth was flat and formed the fixed centre of the Universe, round which the Sun and all other heavenly bodies revolved. But some Greek philosophers held contrary views. In particular, Aristarchus of Samos (c. AD 275) argued that the Sun is the centre of all heavenly motions and that the Earth revolved round it. Another Greek philosopher Eratosthenes (273 -192 BC) held the Earth to be a spheroid and calculated its circumference to a surprisingly correct degree (24,662) miles as against 24,902 miles, modern calculation. But these ideas of the Greek philosophers never gained currency. The popularly accepted ideas of the times were formulated as an astronomical thesis by Claudius Ptolemy, a Graeco Egyptian astronomer, in his great work (AD 140) *Almagest.* Ptolemaic theory ruled for another 1,400 years, mainly for two reasons. First, it agreed with the apparent motions of the celestial bodies, as observed from the Earth. Secondly, it flattered man's vanity to think that his abode—the Earth—was the centre-piece of the universe.

The Ptolemaic theory was questioned by Copernicus, a Polish astronomer in his work *De Revolutionibus Orbium Coleestium* (1543). Copernicus, argued that the Earth and other planets revolved round the Sun.* He arranged the Earth and the five planets then known in the proper order—Mercury, Venus, Earth, Mars, Jupiter, Saturn—and gave them circular orbits around the Sun. The circles were a mistake and were later corrected by Kepler, but the rest of the Copernican theory was sound and unassailable. The great Italian astronomer Galileo (1564 1642) supported Copernicus, and the brilliant German mathematician Kepler (1571 1630) laid down the laws of planetary motions

Sir Issac Newton (1642 1726) dealt the last blow on the Ptolemaic system. He formulated the law of gravitation and co-related it with his laws of motion. He used his newly developed calculus to determine the orbits of celestial bodies. His book *Philosophia Naturalis Principia Mathematica* known shortly as *Principia* marks a turning point, in the history of astronomical thought

The Structure of the Earth

The latest studiees of the Earths structure show that, the Earth's centre is a solid core—the inner core—with a density 13.5 times the density of water. The radius of this core is about 1,216 km. which makes it slightly larger than the Moon The solid inner core is surrounded by a transitional region, a little more than 500 km. thick. The transitional region, in turn, is surrounded by a liquid outer core about 1,700 km. thick. Outside the liquid core is a mantle of solid rock some 2,900 km thick which approaches to within 40 km. of the Earth's surface under the continents and to within 10 km. under the oceans. The thin rocky skin surrounding the mantle is the Earth's crust.

Top Crust. The topography of the Earth's crust, that is, the region just under our feet, so to say, is made up of land surface, with great mountain ranges and ocean basins with high submarine ridges, and deep troughs. It now appears, that this upper surface of the Earth is cut up into several plates that are moving, with respect to one another. Africa is on one such plate and North America on another and so on. Dynamic processes operating along the edges of the plates are responsible for much of the topographical relief on the surface of the globe. Most volcanoes are located and most earthquakes occur near the plate-margins (see—The Saga of the Continents.)

Surface of the Earth

The total surface area of the Earth is 196,950,000 sq. miles of which roughly 3/10 (57,510,000 sq. miles) is land and 7/10 (139,440,000 sq. miles) water.

The visible surface area of the Earth, has been divided into 4 spheres, lithosphere, hydrosphere, atmosphere and biosphere. The *Lithosphere* (litho=rock) consists of the land surface—the continents and islands. The *Hydrosphere* (hydro=water) is made up of the oceans, lakes, and rivers. The *Atmosphere* is the blanket of air, that envelops the earth. It spreads over both the lithosphere and the hydrosphere Inter-connected with all these spheres is the *Biosphere* or the sphere of life, which extends all over the lithosphere, hydrosphere and reaches out into the atmosphere.

Magnetosphere is the earth's magnetic belt, where streams of spiralling protons and electrons from the sun are trapped. This magnetic belt, now called *Van Allen Radiation Belt* (see The Sun) extends to about 64,000 km above the earth. *Magnetopause* is the uppermost layer of the magnetosphere It marks the final frontier between the earth and outer space.

Table 18

Earth Data

Superficial area	196,950,000	sq. miles
Land surface	57,510,000	,,
Water surface	139,440,000	,,
Equatorial circumference	24,902	miles
Meridional circumference	24,860	,,
Equatorial diameter	7,926.677	,,
Equtorial radius	3,963 34	,,
Mean distance from the Sun	92,957,000*	,,
Time of Rotation on its own axis	23 hrs. 56 min. 4 09 sec.	
Period of Revolution round the Sun	365 days 5 hrs. 48 min, 45 51 sec.	
Inclination of the axis to the plane of the ecliptic.	23 degrees 27 min.	

The Copernican thesis is known as heliocentric (sun-centred) system as against the geo-centric (earth-centred) system of Ptolemy.

This is now known as Astronomica Unit (A.U.)

LITHOSPHERE

The Saga of the Continents

Continental Drift

THE continents of today, which lie scattered about the globe, originally formed one land mass or super continent, *Pangaea* meaning 'all lands'. This supper continent broke up under repeated geological pressures, and the broken pieces drifted apart to find their present shapes and locations.

This theory known as the *Continental Drift* was first put forward by a German geologist Alfred Wegener, in 1912. His theory was based on two premises. One was that the geological formations and fossil remains of the present far away continents reveal striking similarities. The second premise was that, some of the disintegrated continents, showed astonishingly complementary coast lines. For example, the east coast line of S. America matches the west coast line of Africa so much that they fit into each other as two pieces of a jig-saw puzzle.

The theory fell into disrepute, since the death of Wegener, as very little supporting evidence was forthcoming. However, since 1965. researches on the subject have shown, that the theory is substantially correct It is now generally accepted that the continents, far from being immutably fixed in their positions, have been constantly on the move throughout geological history and are still shifting.

Plate Tectonics

The theory of Continental Drift has brought in its train a new concept in geology—*Plate Tectonics* *. This concept has revolutionised the science of geology, in the same way as the Copernican theory had revolutionised the study of astronomy. The Copernican revolution entailed a radical change in our conceptions of the Earth and the solar system (see *The Earth* supra).Plate Tectonics has worked a similar revolution in our ideas of the Earth itself. We had thought of the upper surface of the earth as permanently fixed. What troubles there were on this surface, were contributed by earthquakes and volcanoes. But these disturbances were occasional and localised. They never assumed global proportions. On the whole, therefore, the upper surface of the earth remained unchanged Plate Tectonics has shown that this idea is wrong. It has proved that the Earth is not static but dynamic, so dynamic, that it can rightly be described as 'alive and kicking'.

The Continental Drift assumed that the continents ploughed through the oceans like massive ships. Plate Tectonics tells us that it is not only the continents that are in motion, but the oceans as well. This is so, because, the top crust of the Earth, is not (as we have thought) an unbroken shell of rock and basalt, but a mosaic of several rigid segments, called plates. These plates inculde not only the Earth's solid upper crust, but also parts of the denser mantle below. They have an average thickness of 100 kms (60 miles). They float on the plastic upper mantle of the Earth, called *Asthenosphere*, and carry the continents and oceans on their backs like mammoth rafts All these plates are in constant motion relative to one another.

We do not yet know, what forces impel these movements. All that we know is that the plates move about. The movements are accompanied by vast geological changes like earthquakes, volcanoes, formation of new crusts, destruction of old crusts, mountain building and transform faults.

Plate Movements

Three patterns of plate movements, have been noticed. They may converge, diverge or move in parallels (i) Plates are said to converge, where they come together and collide. When two plates come together, one plate has to slide under another plate This is called *subduction.* The subduction zones are marked by deep oceanic trenches. The plate that *goes under,* bends or folds into the ocean trenches, and from there plunges into the boiling mantle below. Such parts of the plate, that go into the mantle are completely destroyed. The plate which *overrides* the other plate is naturally uplifted. Here the top crust becomes two plates thick, that is to say, it may have a thickness going up to 200 metres. This extra thickness eventually forms high plateaus like Tibet or mighty mountain systems like the Himalayas or the Andes. When two plates come together, they grind and grate against each other, setting off earthquakes and volcanic eruptions. It is now established that all subduction zones breed earth quakes and volcanoes. (See *Earthquakes* infra).

---

* Tectonics mean the study of rock structures, involved in the earth movements, Plate Tectonics, is the study of rock structures, which are in the form of plates and are associated with earth Movements.

(ii) Plates are said to diverge, when they drift apart. When two adjacent plates start moving, a crack or rift opens between the plates. Hot magma (melted rock) from the earth's interior wells up through these cracks and becomes solidified As the two plates pull apart, the rift opens wider and more magma pours out through the rift and solidifies. The magma sent up, piles up like ridges on either side, almost symmetrically, As the ridges rise high, overflows on both sides spread farther and new ocean floors come into being This is called *Sea-floor,Spreading*. The *Mid-Oceanic ridge* system, a 47,000 mile long under-sea mountain chain, had been built up in this way.

When a divergent plate-boundary develops under a continent, the continent is rifted or broken into two fragments Oceanic waters invade these openings and form seas which separate the two continental pieces. Here also, the breach is filled up by upwelling magma and new ocean floor is created. The rift which split Arabia from Africa opened the way, for the Red Sea and the Gulf of Aden

(iii) *Parallel Plates*, as they slide past each other, along a common boundary, do not destroy old crusts or create new ones. They butt and jostle each other, and produce what are called *Transform Faults*. Transform Faults are fractures in rock formations. Fractures are often accompanied by some displacement. The displacement may range from a fraction of an inch to thousands of feet. Such areas abound in earthquakes and volcanees. The Koyna earthquake in Maharashtra on 11-12 1967, according to some geologists, was caused by a Transform fault in the Western Ghats.

Thus, the top surface of the earth is being continuously destroyed and continuously created by the converging and diverging plates. Some sort of balance between destruction and creation appears to be maintained, because the total surface area of the earth, has remained substantially unchanged.

Pangaea and Panthalassa

According to the Pangaea hypothesis the original land mass was an irregular unit surrounded by Panthalassa, meaning Universal ocean, that is, the ancestral Pacific. This continent, including the continental slope covered an area of 200,000 sq. km. or 40 per cent of the earth's surface, spread over equally between the two hemispheres. (Today two-thirds of all the land lies in the northcr hemisphere).

Pangaea consisted of North America (with Greenland attached) and Eurasia (minus Arabia and India) in the extreme north; and below it, South America and Africa (with Arabia attached): and further down, Antarctica, Australia and India. Between North America and Eurasia, the rudimentary Arctic Ocean formed a big gulf in the north, while between Eurasia and Africa lay a long large bay, the Tethys Sea, the ancestor of the Mediterranean

The break up * which has resulted in the formation of present day continents and oceans began about 200 million years ago by two extensive rifts in the north and south The *norhern rift* cut Pangaea from east to west, along a line slightly north of the Equator creating *Laurasia* in the north and *Gondwana* in the south. Laurasia consisted of North America and Greenland and Eurasia (without India and Arabia), while Gondwana contained Africa with Arabia attached, South America, Australia, Antarctica and India This rift opened up the Atlantic Ocean.

The *southern rift* cut up Gondwana into two: (i) South America and Africa-cum-Arabia and (ii) Antarctica, Australia and India, This rift opened up the Indian Ocean

About 135 million years ago, a Y shaped rift liberated India from the Antarctica complex and India started on a lone voyage to the north. Some 65 million years ago, North America separated from Eurasia, and South Ameriaca from Africa. The two Americas dirfted west while Africa edged towards the nerth. Later, the drifting Americas (North and South) came together, united by the Isthmus of Panama, while Australia cut adrift from Antarctica and moved northwards About 20 million years ago, Arabia split from Africa to merge into Asia. This brought into existence the Red Sea and the Gulf of Aden.

---

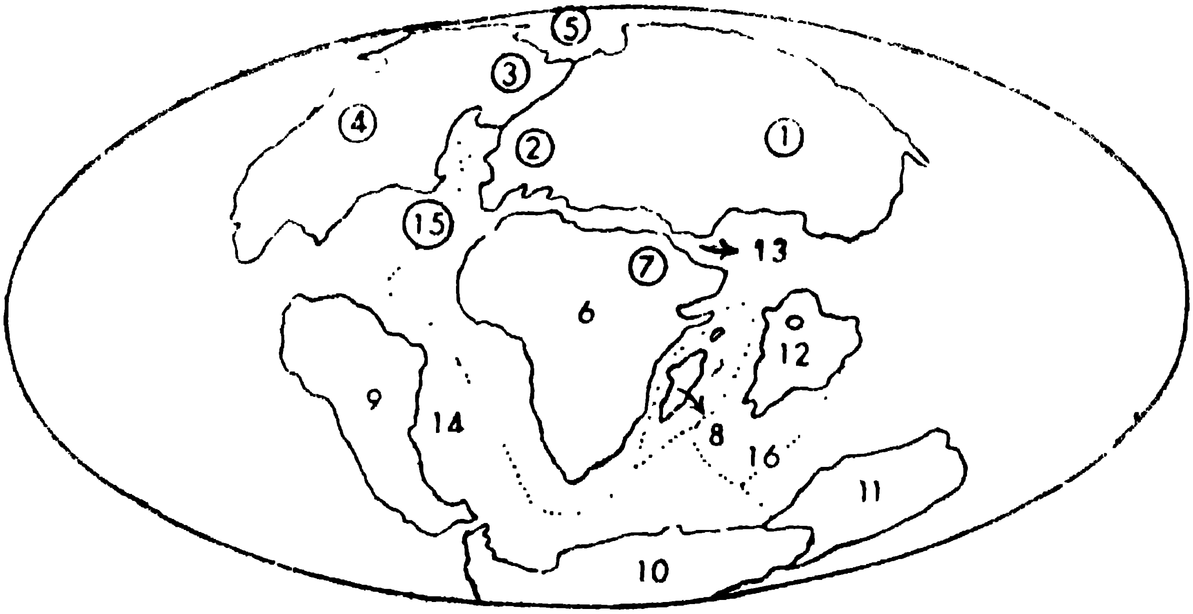
* This is not the first break-up apparently. These must have been previous break-ups and previous conjunctions of the land masses, in what is now called 'Pre-drift drift'.

Continental Drift 65 million years ago

Laurasia consists of Asia (1) Europe (2) Greenland (3) N. America (4) Arctic Ocean (5) Greenland is attached to N. America and both are attached to Eurasia. The line separating the two land blocks shows the line of future split.

Gondwana has been broken up into four blocks (i) Africa (6) with Arabia (7) attached and Madagascar (8) along side. (ii) S. America (9); (iii) Antarctica (10) with Australia (11) attached. (iv) India (12) The Tethys Sea (13) lying between Eurasia and Africa has narrowed. S. Atlantic (14) separeting Afirca and S. America has been formed. North Atlantic (15) is forming. India (12) is practically in the centre of the Indian Ocean (16) which formed when Africa and Antarctica split.

The circle marked on India, shows, the 'hot spot' over which the Indian plate moved and from which lava poured out to from the Deccan basalts. Dotted lines show the edges of the African plate, Madagascar plate and the Indian plate.



1. Asia
2. Europe
3. Greenland
4. N. America
5. Arctic Ocean
6. Africa
7. Arabia
8. Madagascar
9. S. America
10. Antarctica
11. Australia
12. India
13. Tethys Sea
14. S. Atlantic
15. N. Atlantic
16. Indian Ocean

....Edges of crust plates

O Hot Spot

India

Having separated from Antartica and Australia, about 135 million years ago, India undertook a most remarkable journey to the north. On the way, the Indian plate encountered a hot spot (a Huge geyser) near the Equator. As it passed over the hot spot, basaltic magma from the earth's mantle, poured out (through the hot spot) on to the Indian sub-continent over its western edge. The basalts of the Deccan plateau were thus formed. Having been loaded in this manner, India moved on and careened into south Asia about 45 million years ago. The northern margin of the Indian plate dipped into the Tethys Sea and slid under the southern edge of the Asiatic plate

This subduction produced vast geological transformations in South Asia (1) It filled up the Tethys Sea at its eastern end and thus formed a land mass in the place of the sea. The western end of the Tethys sea, remained unaffected and subsequently emerged as the Mediterranean Sea, (2) It put up the Tibetan plateau and the Himalayan mountains. It created the major Seismic belt in India, which extends along the Himalayas and turns south west, culminating in the Ran of Kutch. (3) The land mass which replaced the eastern end of the Tethys sea formed a depression, between the high rising Himalayas and the Deccan plateau. This depression was filled up by alluvial soil, brought down by the Himalayan rivers-Indus, Ganga, Brahmaputra-through centuries. The fertile Indo-Gangetic plain thus came into being. (see *Physiography,* Infra).

The Indian sub-continent was thus formed. Dr D. N. Wadia a renowned Indian geologist considered the Indian sub-continent a geological puzzle. He found it difficult to explain, how three different crust blocks—the Himalayas the Into-Gangetic plain and the Deccan plateau became welded into the geographical entity called India * Plate tectonics has resolved this puzzle. The Indian sub-continent is a natural consequence of two converging plates.

Table 19

Present-day Continents

Continents	*Area (sq. miles)*
Asia	16,988,000
Africa	11,506,000
N, America	9,390,000
S. America	6,795,000
Antarctica	5,500,000
Europe	3,745,000
Australia*	2,975,000

* Australia with New Zealand, Tasmania, New Guinea and the Pacific islands, (Micronesian, Melanesian and Polynesian islands) is called *Australasia* by some geographers. while others call it *Oceania.*

Future Changes

Geologists predict that in another 50 million years, vast changes will have taken place in the upper surface of the earth. These changes will alter the shape of our continents and oceans.

When we speak of future changes, it should not be construed to mean, changes which will suddenly occur, in the remote future. The changes predicted have already started. It is only the ultimate shape of things, after 50 million years, that is being predicted.

The Pacific Ocean has started to shrink. In 50 million years, it will have become much smaller than it is now. Similarly, the Indian and Atlantic Oceans will have widened.

The Red Sea and the Gulf of Adin already show pronounced signs of expansion. It is expected that they will invade the Afar triangle in Ethiopia and Somalia and form a new ocean (The Afar triangle is a vast area, which was obviously under sea, millions of years ago)

A continental rift, already evident will have detached East Africa from the rest of Africa, A similar process is at work in North America, which bids fair to cut adrift California from N. America.

Australia is moving northwards. If it continues to move in the present direction, it will collide with the Indonesian plate. This collision may lead to vast geological changes. It is impossible to predict what will happen.

MOUNTAINS

Mountains, the highest land formations are of four types, according to their mode of orign. (1) *Fold Mountains* arise because the rocks in them have buckled and crumpled through pressure Just as a table cloth when pushed along a table wrinkles up into folds with wave crests and troughs alternating, the rocks of the earth's crust react to lateral pressure to form folds. If the pressure is very great, the folds are squeezed tightly into pleats. Further pressure will send the pleats rolling over one another. Practically all the great mountain ranges-the Rockies, rhe Andes, the Alps and the Himalayas are fold mountains. (2) *Block Mountains* have been formed by vertical movements of the blocks of the earth's crust along cracks of faults. When such movements leave a block of highter land standing between two areas of lower elevation, the high land area forms a block mountain. Block mountains are usually steep sided. The Vosges and the Black Forest Mountains are examples of such formations. (3) *Residual Mountains*. Elevated regions may be so deeply dissected by weathering and river action that only the remnants stand out as mountains. The Catskill mountains of New York State are an excellent example of such residual mountains. (4) *Volcanic Mountains* are formed from volcanoes. When a volcano erupts, the materials that are ejected fall around a hole or crater and build up a mountain that is roughly conical in shape and has a crater at the top. Fuji Yama in Japan, Vesuvius in Italy and the Chimborazo and Cotopaxi in the Andes (S.America) are examples of such mountains.

---

* Sea *The Country,* India

Table 20

Principal Monntain Peaks

Name	*Country*	*Height (ft)*
Mt. Everest	Nepal-Tibet	29,028
Mt. Godwin Austen (K 2)	India	28,250
Kanchenjunga	Nepal-India	28,208
Dhaulagiri	Nepal	26,810
Nanga Parbat	India	26,660
Annapurna	Nepal	26,504
Nanda Devi	India	25,645
Mt. Kamet	India	25,447
Gurla Mandhata	Tibet	25,355
Tirich Mir	Pakistan	25,263
Minya Konka	China	24,900
Mt. Communism	USSR	24,590
Pobeda Peak	USSR	24,406
Muztagh Ata	China	24,388
Chomo Lhari	India-Tibet	23,997
Muztagh	China	23,890
Acongagua	Argentina	22,834
Ojos del Salado	Argentina–Chile	22,539
Cerro Mercedario	Argentina	22,221
Huascaran	Peru	22,205
Llullaillaco Volcano	Chile	22,057
Tupungato	Chile-Argentina	21,489
Sajama Volcano	Bolivia	21,391
Illampu	Bolivia	21,276
Vilcanota	Peru	20,664
Chimborazo	Ecuador	20,561
Mt. McKinley	Alaska	20,320

Table 21

Great Deserts

Name	*Country*	*Area in sq. miles*
Sahara	N. Africa	3.000,000
Libyan	N. Africa	650,000
Australian	Australia	600,000
Great Victoria	Australia	125,000
Syrian	Arabia	125,000
Arabian	Arabja	50.000
Gobi	Mongolia	400,000
Rub'al Khali	Arabia	250,000
Kalahari	Botswana	200 000
Great Sandy	Australia	160,000
Takla Makan	China	125,000
Arunta	Australia	120,000
Kara Kum	S. W. Turkistan	105,000
Nubian	N. Africa	100,000
Thar	N. W. India	100,000
Kizil Kum	Central Turkistan	90,000

VOLCANOES

There are about 535 active volcanoes out of which nearly 80 are in the oceans. Volcanoes are said to be *active* when eruptions occur frequently, *dormant*, when no eruption has occurred over a long period of years and *extinct* when no eruptions have occurred during historic times.

Aconcagua (22,834 feet) the highest peak in the Andes, South America, is an extinct volcano. Killimanjaro (19,565 ft.) in Tanzania, Africa and L'ullaillaco(22,057ft.) in Chile, South America are thought to be dormant. But volcanoes keep surprises up their sleeve, so to say. Vesuvius for instance, was thought to be extinct but it sprang into unexpected activity in 1944.

Volcanoes that have erupted since 1956 and those that are steaming or rumbling are given in the table below.

Table 22

Volcanoes

Height (feet)	*Name & Location*	*Date of Last Notified Eruption*
19,347	Cotopaxi—Andes, Equador	Steams
17,887	Popocatepetl—Altiplano de Mexico (Mexico)	Steams
15,584	Klyvuchevskaya—Sredinny Khrebet (Kamchatka Peninsula) USSR.	1964
14,006	Wrangell—Wrangell Mts., Alaska	Steams
13,812	Tajumulco—Guatemala	Rumbles
12,582	Fuego—Sierra Madre, Guatemala	1962
12,450	Erebus—Ross Is. Antarctica	Steams
12,224	Rindjani—Lombok, Indonesia	1964
12,060	Semeru—Java, Indonesia	1963
11,057	Mt. Etna—Sicily, Italy	1965
10,308	Agung—Bali, Indonesia	1964
6,760	The Peak—Tristan da Cunha, S. Atlantic	1961
4,090	Kilauea—Hawaii	1961
3,031	Stromboli—Island, Mediterranean	1956
568	Surtsey*—off S. E. Iceland, Iceland	1963
510	Ana* (New) Krakatoa—Island, Indonesia	1960

* Both are volcanic islands formed in recent years, Surtsey in 1963 and Ana Krakatoa in 1929.

EARTHQUAKES

About a million earthquakes of varying degrees occur annually on the earth. The great majority of these only causes small vibrations of the earth's surface, in the form of tremors. But on an average, some 20 of them per year, turn out to be major earthquakes and one at least of the 20 or so assumes disastrous proportions. However, only certain areas of the earth are prone to earthquakes all the time These areas are known as seismic belts. The seismic belts coincide with areas of high volcanic activity.

Seismic belts and volcanoes, are now known to be associated with the boundaries of the crust plates, more especially with the 'subduction' zones*. The subduction of the South Pacific plate beneath the South American plate uplifted the Andes Mountains. This subduction zone breeds the quakes that rock Chile and Peru. A similar subduction under the Indonesian plate, powered the eruption of Krakatoa in 1883 and the creation of Ana Krakatoa in 1929. (See Volcanoes) Collisions between the Arabian plate and the Asiatic plate regularly jolt Iran and Trukey. Edges of the African plate diving under the Eurasian plate, melt in the hot mantle below and squirt back as molten lava to the surface, through the craters of Etna, Vesuvius and Stromboli volcanoes.

The circum-Pacific seismic belt, otherwise called the Ring of Fire, is the most important seismic belt and includes the western coast of the Americas, the eastern coast of Asia, the islands of the South-east Pacific and New Zealand. The next important belt called the *Alpine belt* runs from the South Pacific islands, through Java, Sumatra and other Indonesian islands, crosses the Central Asian mountains and passes on through Caucasus to Greece, Italy and Spain. A third belt -the *Atlantic belt*—runs from north to south through the middle of the Atlantic Ocean.

In India, the main earthquake belt runs along the Himalayan Ranges and southwest to the swamps of the Rann of Kutch. All the major earthquakes of India except the latest earthquake at Koyna (Maharashtra State) on 11-12 1967—occurred in this region. (See India)

When earthquakes occur, shock waves travel in all directions from the original source These waves are broadly classified into (i) *Primary* or primary waves, (ii) *Secondary* or secondary waves and (iii) *Surface waves.* The primary waves travel fastest and are the first shocks felt. The secondary waves are slower, while the surface waves are the slowest of all.

Since 1900 there have been 26 quakes resulting in serious loss of life, according to Time.

Among the great quakes of this century, (estimated death totals given in brackets) are:

In 1920 in Kansu—China (180,000), 1923 in Tokyo—Yokohama (143,000), 1908 in Sicily (75,000) 1932 in Kansu-China (70,000), 1935 in India (60,000), 1970 in Peru (50,000). 1939 in Chile (30,000), 1915 in Italy (30,000), 1939 in Turkey (23,000). 1905 in India (20,000), 1960 in Morocco (12,000), and in 1968 in Iran (12,000).

ISLANDS

Islands comprise a large mass of land, the biggest 16 of them accounting for as much as 22 million sq. miles—greater than the area of the continent of Europe. The smaller islands count by the thousands. Islands are broadly divided into three types, continental, oceanic and coral. *Continental islands* are those islands that rise from the continental shelf, like the British Isles or Newfoundland. These islands have the same geological structure, as the continents to which they are attached. *Oceanic islands* are those that rise from the bosom of the oceans. Their geological structure will have no relation to that of the nearest shores. They are very often the tops of submarine mountains or submarine volcanoes. *Ascension* and *Tristan da Cunha* for example rise from the Central Atlantic ridge, while *St Helena* and *Teneriffe* are islands formed by submarine volcanoes.

Coral Islands are the work of minute sea organisms called coral polyps. They congregate in large colonies. When the organisms die, their skeletons, which are made of a substance resembling limestone, form big clusters, some of which rise above the water. These organisms thrive only in warm tropical seas, usually in shallow inshore waters, above a depth of 150 ft. Coral architecture is therefore found only in shallow waters in tropical seas along the borders of islands.

Atolls. Low circular coral islands, each with a central lagoon of shallow water are called 'atolls'. The evolution of atolls is still a matter of speculation. Darwin suggested that atolls begin when corals start building a reef around an island called *fringing reef*. Many tropical islands have such coral fringes. The next stage is when the islands begin to sink while coral building continues upwards. Then a shallow lagoon covering the sinking island emerges between the island and the coral wall. Reefs of this type are known as *barrier reefs*. When the island finally sinks and disappears, only the coral ring remains above the water level, enclosing a central lagoon within This forms an *atoll* In course of time, the coral limestone reef is weathered down to soil and seeds carried by waves or birds begin to sprout and produce vegetation. Then the island becomes inhabitable as a *coral island*.

The Great Barrier Reef which extends for more than 1,200 miles, parallel with the coast of Queensland (Australia) is entirely made up of the limestone skeletons of countless coral colonies. incidentally, this is the biggest coral reef in the world.

Kwajalein in Marshall Islands (Central Pacific) is an atoll and also a coral island The slender limestone coral reef nearly 176 miles long forms a ring enclosing the biggest known lagoon in the world with an area of 1,100 sq. miles. The coral which has weathered down as soil forms an island, shaped like a ring. This ring-like area is inhabited.

Table 23

World's Largest Islands

Name	*Area in sq. miles*	*Location*
Greenland	840,000	Arctic Ocean
New Guinea	317,000	West Pacific
Borneo	287,400	Indian Ocean
Madagascar (Malagasy Rep.)	227,800	Indian Ocean
Baffin Island	183,810	Arctic Ocean
Sumatra	182,860	Indian Ocean
Honshu	83,031	N. W. Pacific
Great Britain	84,186	North Atlantic
Ellesmere Island	82,119	Arctic Ocean
Victoria Island	81.930	Arctic Ocean
Celebes	72,987	Indian Ocean
South Island, New Zealand	58,093	S. W. Pacific
Java	48,763	Indian Ocean
Luzon	46,636	West Pacific
North Island, New Zealand	44,281	S. W. Pacific
Newfoundland	42,734	North Atlantic
Cuba	41,634	Caribbean Sea
Iceland	39,698	North Atlantic
Mindanao	39,191	West Pacific
Ireland (Northern Ireland and the Rep. of Ireland)	31,839	North Atlantic
Hokkaido	30,007	N. W. Pacific
Hispaniola (Dominican Rep and Haiti)	29,530	Caribbean Sea
Sakhalin	28.597	N. W. Pacific
Tasmania	26,215	S. W. Pacific
Sri Lanka	25,332	Indian Ocean

HYDROSPHERE

THE OCEANS

Oceanic Waters

THE oceans cover 70.8 per cent of the earth's total surface area or 140 million sq. miles. They contain some 330 million cubic miles of liquid water. The ocean water contains about 3.5 per cent of dissolved salts --chlorine, sodium, magnesium sulphur, calcium, potassium, bromine, strontium, boron and lesser amounts of carbon, silicon, aluminium, fluorine and iodine,

Tides. The waters of the sea are always in motion owing to a variety of natural forces. First, there are the *tides*, which are caused by the gravitational pulls of the Sun and Moon. The Sun's influence on the tides is less than half that of the Moon, because the Sun is so far away. All the same, the Sun countervails and supports the Moon's pull alternately. When the Sun Moon and Earth are in a line as at new and full moon, the Sun and Moon combine their powers and we have very high tides called 'spring tides'. When the Sun and the Moon are at right angles, as in the Moon's first and third quarters, the Sun acts as a counterbalancing force and reduces the Moon's pull. During these periods. we experience very low tides, called 'neap tides'.

Inter-flow. Sun's *heat* also causes oceanic water to move. The sun warms up the water in the equatorial regions causing it to expand and rise by a few inches. This extra rise in the Equator causes the water to flow down, so to say, to the north and south poles. As the warm water of the Equator flows north and south, the heavier cold water (heavier, because of its extreme condensation) in the polar areas sinks below the warm water and spreads slowly along the bottom to the equatorial regions. This inter-flow is complicated by the force of the *rotation* of the earth. Because the earth spins eastwards, the sea water tends to roll up to the west, turning slightly to the right in the northern hemisphere and to the left in the southern hemisphere. This is known as the *Coriolis Effect*, after the French mathematician, who discovered it, nearly a century ago.

Winds. On top of it all, there is the force of *winds*, which are themselves caused by the rotation of the earth. The trade winds, which form a regualr feature of the tropical regions blow diagonally towards the Equator from the east in both hemispheres and then turn about and blow eastwards. Thus they keep pushing the ocean waters from the east to the west and then circle them back This causes the huge *oceanic eddi s* of whirling waters on the surface of the ocean.

Ocean Currents. The ocean currents, not only help navigators but also influence the climate of the adjoining land surface and determine fishing grounds. *Gulf Stream:* The earliest ocean current to be noticed and charted is the *Gulf Stream* in the North Atlantic It flows from the Gulf of Mexico into the Atlantic Ocean, as a warm and swift current. It follows the American east coast up to Newfoundland. Near Newfoundland, the warm Gulf Stream meets the icy *Labrador Current* from the Arctic, melting down thousands of icebergs carried by the Labrador Corrent and causing billowing banks of fog. Half way to Europe, the stream splits up into two branches The *Kuroshio Current* in the North-west Pacific skirts Formosa and the Japanese islands and goes along the coasts of British Columbia, Washington and Oregon. It is a warm but slow-drifting stream. *Humboldt Current* is a cold current that runs along the west coast of South America. This current carries with it plenty of fish-feed and nourishes one of the richest populations of marine life in the world. The Peruvian fishing industry thrives upon this current. It also supports millions of birds who live on fish and whose droppings on the shore, (guano), form the basis of an extensive fertiliser industry.

Among other Ocean Currents are:-

(1) South Equatorial Current (2) *Brazil Current* (3) *West Wind Drift* (4) *Benguela Current*- all in South Atlantic. (5) *North Pacific Drift* (6) *California Current* (7) *North Equatorial Current*- all in North Pacific (8) *South Equatorial Current* and (9) *West Wind Drift*- both in South Pacific.

Deep Under—Currents. Recent researches in oceanography have revealed powerful under-currents in the sea. The *Cromwell Current*, discovered In 1951 is a fast under current in the Pacific, some 3,500 miles long and almost as fast as the Gulf Stream. In 1957-58, a joint British-American oceanic team discovered a great current under the Gulf Stream; between a depth of 6,000 and 10,000 ft. which was flowing in the opposite direction to the Gulf Stream These deep under-currents are still being investigated.

DEMARCATION OF THE OCEANS

The oceans merge so naturally into one another that it is hard to demarcate them.

The Pacific is the largest of the oceans It occupies nearly half the earth's surface. It is 10,492 miles at its broadest and more than 37,000 ft at its deepest The Pacific has the greatest conglomeration of islands, which fall into three major groups, Micronesia, Melanesia and Polynesia.

The Atlantic, the second largest ocean, has an area of over 31 million sq. miles with an average depth of 13,880 ft·

The Indian Ocean, the third largest ocean has an area of more than 28 million sq. miles. It extends from Cape Comorin in India down to the Antarctic Continent.

The Arctic, the smallest of the oceans lies around the North Pole between the huge continents of Eurasia (Europe and Asia) and the Americas. The tips of the Asian continent and the North American continent meet at Bering Strait barely 45 miles across. The Bering Strait links the Arctic to the Pacific while the Arctic merges into the Atlantic between Greenland, Iceland and Norway. The Arctic is covered with drifting ice, at all through the year.

Table 24

Principal Oceans and Seas

Name	*Area in sq. miles*	*Volume in cubic miles*
Pacific Ocean	63,801,000	162,870,600
Atlantic Ocean	31,830,000	75,533,900
Indian Ocean	28,356,000	69,225,200
Arctic Ocean	5,440,000	4,029,400
Mediterranean Sea	1,145,000	1,019,400
Bering Sea	876,000	788,500
Caribbean Sea	750,000	2,296,400
Sea of Okhotsk	590,000	454,700
East China Sea	482,000	52,700
Hudson Bay	475,000	37,590
Japan Sea	389,000	383,200
North Sea	222,000	12,890
Red Sea	169,000	53,700
Black Sea	165,000	...
Baltic Sea	163,000	5,360

Table 25

Deep Sea Trenches

Length (miles)	*Name*	*Deepest point*	*Depth (feet)*
2,200	Peru-Chile (Atacama) Trench, E. Pacific	Bartholomew Deep	26,160
2,000	Aleutian Trench, N. Pacific	... ...	25,194
1,600	Tonga-Kermadec Trench. S. Pacific.	Vityaz II (Tonga)	35,598
1,400	Kuril-Kamchatka Trench, W. Pacific	... ..	34,062
1 400	Java (Sunda) Trench, Indian Ocean	Planet Deep	25,344
1,400	Mariana Trench, W. Pacific	Challenger Deep	35,760
1,000	Japan Trench, W. Pacific	Ramapo Deep	34,038
825	Philippine Trench, W. Pacific	Galathea Deep	34.578
	Mindanao Trench (off Mindanao, Philippines)	Mindanao Deep	*37,782

Depth sounded by *H.M.S. Cook* in 1962

SUBMARINE TOPOGRAPHY

The average depth of the sea is 12,300 ft. compared to the average land height of 2,750 ft. The ocean floor is usually divided into four parts (1) *The Continental Shelf,* a shallow area surrounding the land masses up to a depth of about 600 ft· The boundary of the continental shelf is known as the *Continental edge* (2) *The Continental Slopes,* are often steep and descend from the continental edge to the deep *sea plains* (3) The deep *Sea plains* comprise the greater portion of the ocean floor. It is an undulating area, usually more than 2 miles below the sea level (4) The *Ocean deeps* are long narrow trough like depressions like the Mariana Trench, south west of the island of Guam.

It was once thought that the sea bottom was flat and featureless. Recent researches in oceanography have revealed amazing topographical features in the ocean bed. The sea basins, some two and a half miles down are furrowed with terraces, ribbed with mountain ranges, pitted with deep valleys and scoured by mighty rivers.

Mountains

Several ranges of mountains rise from the bottom of the ocean The Mid Atlantic ridge, running more or less through the middle of the Atlantic is the biggest mountain system in the world, whether on land or in the sea. It is 10,000 mile long and 500 miles wide, with an average height of 10,000 feet from the ocean bottom. This is a volcanic range of mountains, much of which lies submerged under water. But here and there, these mountains emerge above the water to form islands. Mount Pico, in the island of Azores is an off-shoot of this mountain range. It rises 23,615 feet from the sea bottom but only 7,615 feet above the sea level.

It is now found that the Mid Atlantic range is only a part of a great range of mountains, some 40,000 miles long, which winds the globe like a girdle This range is divided along its centre line by a thin deep rift valley. This rift is one of the weak joints between plates Drillings carried out by the research ship *Glomar Challenger* from 1968 showed that the plates on either side of the ridge are sliding away from the ridge at nearly an inch a year. This shows that the Atlantic is widening (see the Saga of the Continents)

Rivers

Rivers in the sea bottom, appear to be as innumerable as rivers on land. The Mid-Ocean Canyon in the Atlantic is one of the gigantic submarine rivers Its main branch is 2,000 miles long and 2 to 4 miles wide. These underwater rivers have seasons of flood and recession like the rivers on land. The Congo Canyon during flood, throws up mud banks some 20 miles wide and 600 ft. high. The Submarine Canyon recently discovered southwest of Australia is the deepest of the submarine rivers known. It is 20 miles wide and cuts down 6,000 ft. into the ocean floor.

Volcanoes

Volcanoes in the sea, are mainly responsible for the birth of new islands and the destruction of old ones **Krakatoa,** an island in the Sunda Straits (Indonesia) was blown up by a volcanic eruption on Aug. 27, 1833. This explosion was so violent, that it wiped out the entire island (then 18 sq miles), the sea covering up the whole area up to a depth of 1,000 feet Dust rose 20-30 miles into the air. The noise of the explosion was heard in Australia, 2,000 miles away and the vibration broke the window panes in Batavia 100 miles away. Gigantic tidal waves were let loose, the sea rising up to 50 ft, on the shores of neighbouring islands More than 36,000 people were killed by the tidal waves. The dust particles in the atmosphere gave rise to vivid sunsets not only in Asia but in all parts of the world for the next three years and the moon took on a bluish colour, apparently due to the dust particles in the atmosphere. In 1929 a new island suddenly emerged in the same place and was aptly named Ana Krakatoa (Child of Krakatoa). Quite recently (in the sixties) North Atlantic gave birth to a volcanic island off the coast of Iceland. The island, since named Surtsey after a legendary Norse giant, appeared on Nov. 14, 1963—a flaming, smoking, sizzling mass. Within four days, the island rose 200 ft. high and extended to a length of 200 ft. Further eruptions of hot lava from under the sea put up the size of the island in 1967 to a height of 567 ft. above the sea level and a length of 1.3 miles.

Tidal Waves

Tidal waves is a misnomer, because these waves have nothing to do with the tides. On the contrary, they are caused by earthquakes that occur on the sea bottom. The Japanese call them *Tsunami.* They flash through the open seas at the fantastic speed of 400 miles or more per hour. The waves follow one another in a stream with an interval of some 15 minutes between them. The waves appear so low and harmless in the open seas that they often deceive the sailors. When they near the shore, however, they rise up to 40-50 ft. and even to 100 ft. in bays and inlets, battering down trees and houses in a few minutes These waves travel very long distances and cause untold misery and loss, far away from their original starting points. The wave that hit Japan in 1960 was started by earthquakes off the coast of Chile.

Rivers and Lakes on Land

Rivers and lakes on land are really part of the Hydrosphere, even though we are accustomed to treat them as land features.

All rivers, big and small flow from high mountains or high land altitudes to the sea. They thus form a link between the heights of the land and the depths of the sea. The great rivers of the world flowing down from the mountains, have opened out into fertile valleys, many of which have served as the cradles of human civilization.

The Longest River. According to the latest National Geographic Survey Amazon is 4,195 miles long, which makes it the longest river exceeding the estimated length of the Nile by 46 miles. Till recently, the Nile was considered the longest of the rivers.

The Amazon is thus on all counts, the mightiest of the earth's rivers It is the longest navigable river with 2,300 miles of navigable waters. It has the greatest flow estimated at an average of 4,200,000 cubic feet of water per second (cusec) with more than 7,000,000 cusecs in flood. It has the largest river basin in the world—2,720,000 sq. miles. It has about, 15,000 tributaries and sub tributaries, the longest tributary Madeira having a length of 2,100 miles

Table 26

Longest Rivers

Name	*Country*	*Length in miles*
Amazon	S. America	4,195
Nile	Africa	4,149
Mississippi - Missouri	USA	3,710
Yangtze	China	3,400
Indo Irtysh	USSR	3,200
Congo	Africa	2,900
Amur	Asia	2,704
Hwang Ho (Yellow)	China	2,700
Lena	USSR	2,648
Mackenzie	Canada	2,635
Mekong	Asia	2,600
Niger	Africa	2,600
Parana	S. America	2,450
Yenisey	USSR	2,364
Murray-Darling	Australia	2,310
Volga	USSR	2,290
Madeira	S America	2,100

Geo-corona is a new term, which simply means the corona of the Earth. We know the Sun has a corona (see the Sun Part II). We also know that the moon now and then is seen with a halo round it. Some people think that it is the Lunar Corona But so far, it was not thought, that the earth had any sort of a corona at all.

Now, a special camera, left on the lunar surface by the Apollo 16 mission has caught the earth wearing a corona The camera showed a cloud of atomic hydrogen extending outwards from the earth to a distance of about 64,000 km Such a large amount of hydrogen can be made by spliting the water molecules in the upper atmosphere by solar ultra violet radiation. This will incidentally produce a lot of oxygen for the Earth.

It was believed, that all the oxygen in the atmosphere was produced by photosynthesis through millions of years. The hydrogen corona of the earth shows, that much of the oxygen supply of the earth, could have been contributed by solar ultra violet radiation.

Table 27

Principal Lakes & Inland Seas

Name	*Country/ Countries*	*Area sq. miles*
Caspian Sea	USSR & Iran	143,550
Superior	Canada & USA	31,820
Victoria Nyanza	Uganda, Tanzania and Kenya	26,828
Aral Sea	USSR	25,300
Huron	Canada & USA	23,010
Michigan	USA	22,400
Tanganyika	Zaire, Tanzania and Zambia	12,700
Great Bear	Canada	12,275
Ozero Baikal	USSR	11,780
Malavi (formerly Nyasa)	Tanzania, Malawi and Mozambique	11,430
Great Slave	Canada	10,980
Ontario	Canada & USA	7,520

ATMOSPHERE

Protective Blanket. The atmosphere is an insulating blanket protecting the Earth. It softens the intense light and heat of the Sun. Its ozonic (O_3) layer absorbs the most deleterious wave lengths of the sun's ultraviolet rays and thus protects living organisms from extinction. The atmosphers is bound to the earth by gravity. Satellites like the moon, who have very low gravitational power, cannot and do not hold an atmosphere Although air has very little weight (a cubic foot of air weighs about an ounce and a quarter), it has a pressure of 14 7 pounds to the sq. inch at the sea level. The pressure decreases as the level mounts.

Composition. The atmosphere is composed of various gases and water vapour, and in its uppermost reaches, it is charged with subatomic particles. Up to about 30 miles from the earth, the atmosphere consists of about 78 per cent nitrogen, 21 per cent oxygen (O_2)* and minor percentages of argon, carbon-dioxide neon, helium and methane, in that order. Above 30 miles, the atmosphere is made up of atomic oxygen O_1), ozone (O_3), helium and hydrogen

Water vapour is present in the lower atmosphere, say up to 7 miles, in concentrations ranging from .01 per cent to 4 per cent Although the amount of water vapour in the atmosphere is very small, its importance is very great, for without water in the atmosphere, there would be no weather on earth Water enters the atmosphere by evaporation from the hydrosphere (and also by transpiration of plants and leaves the atmosphere by precipitation as snow or rain It is a never-ending two-way traffic.

ATMOSPHERIC LAYERS

The character and composition of the atmosphere changes, as we go higher and higher up Altitudinally arranged, the atmosphere falls into 5 layers or divisions (1) Troposphere (2) Stratosphere (3) Mesosphere (4) Ionosphere and (5) Exosphere, with Magnetosphere marking the farthest limit.

Troposphere. This is the lowest gaseous layer of the atmosphere and extends to a height of about 7 miles from the earth. The troposphere contains nearly two-thirds of the total mass of the atmosphere. It is the region of weather and clouds Here, the temperature decreases with height The familiar saying "the higher we go. the cooler it is" applies to this region of the atmosphere.

Tropopause. This is the layer that joins Troposphere the lowest layer, with the upper layer Stratosphere The height of tropopause varies with latitude It is the highest at the Equator, where it is located at 18 km above the earth. At the poles, it is about 6 km. above the earth. In India, the tropopause is generally at a hight of around 16 km

Stratosphere, about 10 miles thick is the region above the clouds This region is free from the violent weather changes that occur below It is therefore preferred by our jet air liners. The temperature here is fairly constant.

Stratopause, marks the boundary line between stratosphere and Mesosphere.

Mesosphere. The Mesosphere is relatively motionless, but is the scene of vast chemical reactions. This sphere contains the ozone layer. Ozone (O_3) is what is called 'heavy oxygen' and contains 3 atoms of oxygen to the molecule*. Ozone is usually formed when strong electric charges or ultra-violet rays pass through oxygen. In the mesosphere, oxygen is converted into ozone by the sun's ultra-violet rays and acts as a shield against lethal ultra-violet radiation infiltrating the earth. The mesosphere, is also the region where water vapour is broken up by sunlight into hydrogen atoms and molecules of hydroxyl one hydrogen atom and one oxygen atom) Here, the temperature decreases fairly rapidly with height.

Ionosphere. Here more radical change occur. Almost all the atoms in this region are ionised. that is, their electrons are stripped off by the sun. This makes this layer of atmosphere a conductor. The electric waves entering the conducting region are reflected or refracted back , to earth. This reflection enables radio waves to bend and pass round the earth So radio waves reaching this layer can be guided around the globe in such a way as to permit them to be utilised in long distance communication.

---

* O_1 is atomic oxygen, O_2 molecular Oxygen (ordinary oxygen), and O_3 ozore or heavy oxygen.

Exosphere. This is the outer most zone of the atmosphere and begins at about 300 miles from the earth. The air at this altitude is so thin that its atoms seldom collide with one another, They spin about in ballistic courses, like artillery shells, curving high and then down again. Some are in orbits round the earth iike satellites The fastest of all, those that have received powerful boots from violent collision with other atoms achieve escape velocity and soar out of the atmosphere, never to return. The exosphere thins out gradually and virtually ends, at a height of around 600 miles. The exosphere is an isothermal region where the temperature remains constant.

The Wind Belts

Wind belts are formed by streams of air moving over the earth's surface on land and sea. These movements are determined by the changing air pressures The air in and near the equator receives the greatest amount of heat from the sun. When air is heated at the equator, it rises up Cool air from the north and south then moves to the equator to take the place of the rising air, and this inmoving air itself gets heated in its turn and is forced to rise The rising air in time cools and moves north and south and gradually sinks down to the earth at about 30 degree north and south latitudes, from where, some of the air flows towards the equator and some towards the poles.

Trade Winds and Westerlies

When air rises at the equator, the pressure of the atmosphere there is low. This is a region of calmness called *Doldrums* Where the air is descending and heavy, the pressure is high. These regions of high pressure are called *Horse Latitudes*. Winds always blow from high pressure areas to low pressure regions. The two winds blowing towards the equator from north and south are called the N. E. and S. E. *Trade Winds*. Trade winds have nothing to do with trade; although trading vessels, especially in the days of sail, took advantage of them. The epithet *trade* is derived from 'tread', that is to say, from the fact that these winds blow regularly along a 'trodden' pathway in the atmosphere.

Westerly winds (south westerly in the northern hemisphere and north westerly in the southern hemisphere) blow polewards and therefore become cooler. Thus they lose their capacity for holding moisture and tend to drop rain. Trade winds blow towards the equator and become hotter. They therefore increase their capacity to hold moisture and do not condense into rain. Thus westerlies are in the main, rainbearing winds and therefore denote a wet climate. Trade winds on the contrary are dry winds that bring fine weather and low rainfall.

Monsoons

Winds keep moving from the land to the sea and back, according as the land or sea becomes hotter or cooler. During day, the land is hotter than the sea and the sea air moves in to take the place of hot land air which rises up. At night, the land cools quicker than the sea and the land air moves to the sea, to replace the hot rising sea air. Monsoons may be regarded as interchanging land and sea winds on a continental scale.

The word 'monsoon' is derived from an Arabic word meaning 'season', which implies that the monsoon is a seasonal wind. In summer, the land is hotter than the sea which means that there is low pressure on the land and high pressure over the sea. Therefore the wind blows from the high pressure area over the sea to the low pressure area over the land. These winds are laden with moisture and bring rain In winter the process is reversed, as the land becomes cooler than the sea. This causes winds to blow from the land to the sea. The Monsoon system extends over a huge area—China, Japan, South East Asia, India and Australia. The system has two distinct branches—Asian and Indian, The Asian system covers China, Japan and all South East Asia except India. The Indian Monsoon is mainly confined to the Indian sub-continent, India, Pakistan and Bangladesh.

TROPICAL STORMS

Tropical Storms are known by different names in different places. They are *hurricanes* in U. S. *typhoons* in and around the Philippines and *cyclones* in the Indian sub continent. The Chinese call them 'Taifu' meaning great wind, the Japanese have christened them 'Akashima' meaning swift wind. The Americans name every hurricane separately. These names are all feminine, *Amy*, *Betsy*, *Clara Daphne* etc.

Towards the end of summer, tropical depressions are formed over the sea areas in the Doldrums. The hurricanes originate over these seemingly peaceful tropical waters. They move westwards or polewards along fairly regular tracks and devastate islands and coastal areas in their paths but rapidly die out overland. As a rule, all countries lying along the western sides of oceans, experience hurricane disasters.

One to three hurricanes strike U. S. annually. Betsy (1965) Camille (1969) and Agnes (1972) were some of the worst hurricanes that swept over U. S. in recent years. In the Far East, the typhoon season begins in June, reaching its peak in September and subsiding by November. They originate east of Philippines and usually travel towards Japan or mainland China, but their route is unpredictable. In 1970, the Philippines experienced three typhoons one after the other. The Bay of Bengal in the Indian Ocean is another cyclone centre. Bangladesh and the eastern coasts of India are hit by cyclones, almost every year. The 1970 cyclone in Bangladesh is the worst on record in many years.

The hurricanes are distinguished by their high wind speeds. By definition they have winds stronger than 74 miles per hour. Maximum of winds, however, vary from storm to storm and may reach velocities of 150 200 miles per hour. As the winds form, there is a very deep calm—the proverbial calm before the storm. Then, they burst out lashing. A fully developed hurricane may cover an area 300 to 400 miles in diameter and last from one to thirty days. Its most unusual feature is the eye, or storm centre -a region of low pressure, relatively calm winds, temperatures 10 to 15 degrees warmer than the surrounding air, little or no precipitation, and only a few clouds. The diameter of a typical eye is about fifteen miles.

Around the central eye, winds converge in circles. The circular motion of the air around the storm's eye is due to the rotation of the earth, which deflects winds north of the Equator to the right and those of the south to the left. Towering clouds build up very high walls around the centre. The eye-wall clouds have bases about 500 ft above the surface of the sea. The tops of these clouds reach 40,000—50,000 ft high. The storm's heaviest rainfall, highest speeds and maximum turbulence are concentrated in these cloud walls. The wall clouds themselves are surrounded by active rainbands, which spiral in from the outside toward the centre. It is the latent heat in this moist air that powers a tropical cyclone.

In a single day, a moderately intense hurricane often releases as much heat energy as would be released in the simultaneous detonation of 400 twenty-megaton hydrogen bombs. If converted to electricty, that amount of energy would be sufficient to supply all the electrical needs of the entire United States for more than six months. Furthermore, hurricanes release this energy, day after day, until they weaken and dissipate—that is, over a period that averages a week.

Hurricane damage results from three principal factors, (1) the destructive force of the wind (2) the storm surge or the rise of the water level along the coast, as the hurricane moves inland and (3) the floods caused by torrential rains, which can average 6 to 12 inches in a period of 24 hours or less.

A Volcano Factory

Geologists believe that a huge column of upwelling lava, known as a plume, lies at a fixed position in the Pacific. As the Ocean floor moves over the hot spot (plume) at about 5 inches a year, the upwelling creates a succession of volcanoes that in turn migrates with the plate. This sea-floor drift explains the remarkable chain of volcanoes in the Hawaiian islands and the Emperor sea mounts. With the Pacific Ocean floor, as a conveyor belt, this mid-ocean blast furnace has been turning out volcanoes for at least 70 million years.

BIOSPHERE

The Problem of the Biosphere. The idea of a biosphere (sphere of life) was first suggested by the Austrian geologist Eduard Suess, nearly a century ago. It was at that time an insignificant concept. But in recent years, the biosphere has assumed great importance. We have now begun to feel, that we have been systematically messing up our environment. Our reckless exploitation of natural resources and the wanton discharge of useless wastes into the biosphere, have tended to disturb the delicate rhythm of the natural cycles and to upset the finely adjusted ecological balances. The Stockholm Conference on Human Environment, sponsored by the United Nations in June, 1972, highlights the importance of the question.

A typical case in point is our use (or misuse?) of the fossil fuels coal and oil The energy contained in these fuels, has been fixed by photosynthesis through millions of years It had lain buried in the earth, for hundreds of years. As soon as we discovered these sources of energy, we started exploiting them We burnt them up for power, and in the process, released carbon dioxide, which went on accumulating in the atmosphere, It is estimated that within the past century, the carbon dioxide content of the atmosphere has risen from some 290 parts per million to 320 parts .032 per cent) with more than one fifth of the increase occurring in the last decade (1960 -70). A study sponsored by the M. I. T. and directed by C. L. Wilson of M. I. T. suggested in July, 1971 that a projected increase of 18 per cent in atmospheric carbon dioxide by A D 2000 could raise the earth's average surface temperature half a degree Celsius. If the carbon dioxide content of the atmosphere is permitted to increase at this rate, the surface temperature of the earth would go on increasing, till it would become, literally too hot for any life to survive

Excessive carbon dioxide in the atmosphere is, however a rather distant menace. It is not of any immediate significance What calls for immediate action are other gases and chemicals that our factories, houses and transport equipment spew all around them - on the earth, in the waters, and the atmosphere. The list of pollutants, all potential killers is interminable lead, mercury, sulphur oxide, carbon monoxide, nitrous oxide, pesticides, defoliants and what not.

The biosphere has a rhythm and a movement of its own, which depends upon a whole set of delicately balanced cycles. It is absolutely necessary that these cycles should be maintained unimpaired. If we continue to discharge deleterious chemicals into the biosphere around us, they will without doubt, interfere with the established cycles Worse than that, they will cause new cycles to come into being cycles that are toxic and destructive

Energetics of the Biosphere. The Sun is the ultimate source of all energy in the biosphere. It accounts for 99.98 per cent of our total power resources. Solar energy permeates the earth as sunlight Light consists of bundles of energy, called quanta. The energy content of a quantum is proportional to the frequency of light The shorter the wave length, the higher the frequency, and the greater the energy content

The Energy Cycle. The primary producer of energy in the biosphere is the plant kingdom and the primary process, photosynthesis. Photosynthesis combines molecules of carbon dioxide and water to form carbohydrates and oxygen. It is known that blue light and red light trigger the mechanism of photosynthesis The energy, thus produced, is stored in the plants as chemical bonds, notably, those of carbohydrate and of adenosine triphosphate (ATP) which form the basic source of energy for all living cells.

This energy is carried up the food chain by herbivores feeding on plants and carnivores feeding on the herbivores Carnivores like man, draw their energy both from plant and animal sources When plants and animals die, decomposing micro organisms feed upon them and return the material ingredients of life to the soil, and the cycle continues.

The Carbon Cycle. The biosphere contains a complex mixture of carbon compounds, in a continuous state of creation, transformation and decomposition. Practically all organic matter originates in the process of photosynthesis The plants use the radiant energy of the sun to convert carbon dioxide and water into carbohydrates by splitting water to derive hydrogen, and by drawing in carbon dioxide from the air. In the process, the plants release free oxygen (O_2) into the atmosphere. When plants decompose or are eaten by animals, oxygen is used to convert carbohydrates into energy, thereby releasing carbon dioxide and water. Thus plants, animals and microbes co-operate to keep the carbon cycle going.

The Oxygen Cycle. Oxygen not only supports life but also plays a fundamental role as a building block of practically all vital molecules, accounting for about a fourth of all the atoms in living matter.

The most recent factor affecting the oxygen cycle of the biosphere and the oxygen budget of the earth is man himself. In addition to inhaling oxygen and exhaling carbon dioxide, man decreases the oxygen level and increases the carbon dioxide level by burning fossil oils. He converts green lands into asphalt-paved cities and reduces photo-synthetic activity.

Genesis of Oxygen

It was believed till recently, that the primordial atmosphere did not contain oxygen. The oxygen now in the atmosphere was put in by the plant kingdom through photosynthesis The plants took up water from the earth and split it into its constituent atoms, hydrogen and oxygen. They used hydrogen to make carbohydrates for themselves and released oxygen into the atmosphere· Oxygen started accumulating in the atmosphere, about 1 8 billion years ago.

This view has recently been questioned. It is now known that the Earth has a hydrogen corona that extends to a distance of 64,000 kms from the earth. It is suggested that the Sun's ultra-violet radiation broke up water molecules in the upper atmosphere into hydrogen and oxygen. The hydrogen thus released formed the corona, while oxygen passed into the lower atmosphere. So, it is argued that oxygen in the atmosphere was put in by the sun's ultra-violet radiation and not by the photo-synthetic activity of the plants.

This difference of opinion, as to how oxygen was initially produced, is of academic interest only. What matters now, is that plants are helping by photosynthesis, to keep the oxygen cycle going.

Heat Cycle

Heat is one of the prime requisites of life. This is supplied by Solar radiation. It is calculated that the solar heat, reaching the earth's orbit (just above the atmosphere) amounts to about 2 calories per sq. centimetre per minute. But a lot of this heat, is absorbed by the atmosphere, especially by the ozone layer, in the mesosphere, (see *Atmosphere supra*). Lower layers of atmosphere, also absorb heat, which is reflected back into space by the clouds or is simply scattered at lower altitudes

Nevertheless, an average of 81 per cent of the incoming solar heat manages to reach the earth's surface. Roughly a third of this energy is immediately reflected back into space. The remaining-⅔rds is absorbed by the continents and oceans. About 77 per cent of this radition is ultimately re-radiated as long-wave radiation, through the atmosphere back into space. The remaining 23 per cent goes into the evaporation of water and to keep the water cycle going.

It is essential that the absorption and re-radiation of heat should ultimately balance. Otherwise the earth would experience a net increase in heat or a net decrease according as a surplus or deficit of heat results from radiation. The balance between absorption and re-radiation is mainly regulated by water vapour in the atmosphere There is only a very little amount of water in the atmosphere, about 000053 per cent. This insignificant amount of atmospheric water, exercises an influence on the climate of the earth out of all proportion to its total mass Besides keeping the balance between the absorption and radiation of heat, it controls the water cycle and determines our climatic conditions.

Water Cycle

Water plays a versatile role in the functioning of the biosphere· It is essential to all forms of life, plants, animals and man. The water cycle has two distinct branches–the atmospheric branch and the terrestrial branch. In the atmosphere, water exists mainly in a gaseous form. On the earth, liquid forms and solid forms (ice) predominate.

It was estimated at a symposium of the International Hydrological Decade, held in Great Britain that the world has a total supply of 1.5 billion (thousand million) cubic km. of watar, of which oceans and seas contain 97 per cent. Of the remaining three per cent, three quarters are locked up in ice and snow and the rest comprise underground water and surface water-mainly contained in the great lakes of the world. We survive on the minute .027 per cent in fresh water rivers, lakes and ground water. This little stock of water is replenished by an even smaller stock of mobile water .000053 per cent, that moves around as water drops and water vapour in the atmosphere.

The water cycle of the biosphere depends on the reciprocity of evaporation and precipitation. Liquid water on the earth goes into the atmosphere as vapour by evaporation and transpiration of the plants. The vapour is returned to earth (precipitation) as rain or snow. Evaporation and precipitation are not uniform everywhere on the earth. Although some areas receive very heavy rainfall, and other parts have little or no rain, the total quantities of evaporating and precipitating water must tally on a global scale and they do.

But it is some of the peculiar properties of water, that make it a powerful agent in the energisation of the biosphere (1) Most materials expand when heated and contract when cooled, but water reaches its minimum volume above freezing point at 3.9°C. When it is cooled further, it freezes into ice and expands 10 per cent to make it a relatively light solid. (2) Water is the only substance that we commonly see around us in all states—solid, liquid and gaseous. The changes from one state to another (from solid to liquid to gas and vice-versa) which frequently take place, represent great changes in energy distribution. Cooling and freezing water gives up heat. Warming and vapourising water absorbs heat. (3) Among liquids, water has the greatest specific heat (the ability to store heat energy, for a given increase of temperature). This means that a lot of heat can be carried in a relatively small mass of water. (4) With the exception of mercury, water has the greatest thermal conductivity of all liquids. These properties enable it to function as a storehouse and carrier of energy in the biosphere.

CLIMATE

Sunlight affects the biosphere in another manner. The distribution of sunlight over the different parts of the earth determines our climatic zones. The action of sunlight depends on three factors, the quantity of light received by each area, the duration of light and the angle at which it falls on the earth. The twin movements of the earth, rotation and revolution, determine the intensity and duration of light and the tilt of the earth's axis, the angle. These three factors combine to determine climatic conditions—our seasons with their warm and cold months and their periods of long and short days. Climatic conditions, in their turn, determine the various forms of terrestrial life.

Climatic Regions. (1) The two polar regions at either end of the earth receive the lowest amounts of sunlight. They are permanently ice-clad, and possess hardly any vegetation and very little animal life (2) Below the polar region is the Tundra region, with permanently frozen subsoil, mainly cold except for brief summer periods. This area is marked by mosses and lichens and other stunted vegetation with a few bushes in the warmer centres. (3) Moorland, where the subsoil is not frozen except in winter. The surface generally is rocky and the main vegetation are short shrubs and tufted grass. (4) Coniferous forests, which are under snow for a few months, and which experience very low temperatures with little rainfall. (5) Deciduous forests, which have warmer temperature and greater rainfall than the coniferous forests. (6) Temperate grasslands, which are fairly wet with no extremes of temperature and where grass and trees grow in profusion. (7) Prairie regions, with extremes of climate and scantly rainfall, mainly suited for extensive mechanised farming and grazing (8) Mediterranean regions This does not mean regions round the Mediterranean, but the areas of the earth, with the typical Mediterranean climate of warm wet winters and hot dry summers and best suited for the cultivation of olives, vines etc. (9) Savannah or hot grassland region, found in the tropics with high temperatures, and small hardy vegetation like grass and stunted trees. This region will appear yellowish brown during the dry season and fresh green in the wet season. (10) Tropical forests are regions of great heat and moisture, with very luxuriant vegetation and high-growing trees. (11) Semi-desert areas, with scanty and intermittent rainfall which usually experience great extremes of temperature. Vegetation here is sparse, consisting of salt brush, scrub and other stunted plants. (12) Deserts, with little or no rainfall and great extremes of temperature, between day and night and by seasons. These are barren, rocky or sandy places with no vegetation except in patches called oases where there are supplies of water.

EVOLUTION

The Changing Earth

SINCE the Earth came into existence more than 4,000 million years ago, it has had a history of continuous change. Its surface had been rent asunder by *rifts* that have produced our continents and some of our oceans. It has been subjected to *upheavels* that have thrown up mighty mountains and to *subsidence* that have created many of our lakes and seas. Old mountains had been weathered down to stumps, while new mountains were built. Land has submerged under the sea in certain places and the sea has given way to land in others. The face of the earth kept changing like the patterns in a kaleidoscope through successive geological eras. As continents and seas changed and as climates altered, life was modified time and again, to suit the changing environment.

Geological History

Geologically, the history of the formation of the earth may be divided into three great eras. (1) *Palaeozoic* (old forms of life), (2) *Mesozoic* (middle forms), (3) *Cainozoic* (recent forms).

These eras are sub divided into periods or systems depending on the dominance of one or another kind of flora or fauna. The names of the periods are of European origin, because much of the early geological work was done in Europe. In many cases, the names have been derived from localities, where deposits containing characteristic fossils were first discovered. Sometimes, the names are descriptive, such as *carboniferous* meaning 'coal bearing'.

The Cainozoic era

While the Palaeozoic and Mesozoic eras have been divided into regular periods, like the Cambrian age or the Triassic age, the Cainozoic era has been divided into sub eras and then divided into periods like the Paleocene age. At first, the Cainozoic era was divided into three minor eras as follows. The *Primary*, comprising the oldest rock formations the *Secondary*, comprising intermediate rock formations and the *Tertiary* (third) comprising the youngest rock formations. When still younger rocks were discovered, they were classed as *quaternary* (fourth). The two important sub eras of the Cainozoic era, are the *Tertiary* and the *Quaternary* eras (See Table below).

The current geological period is called the Holocene age which began 10,000 years ago. The earliest geological era is Pre Cambrian which began 4,000 million years ago.

Table 28

Geological Time Scale*

Beginning of the period in million of years	*No. of Periods*		
			Pre-Cambrian Era
4000	1.		Archaen (ancient) or Azoic (lifeless).
	2.		Proterozoic (first life)
			Palaeozoic Era
600	3		Cambrian (after Cambria, Latin name for Wales)
500	4		Ordovician (after Ordovices, ancient inhabitants of Wales)
440	5.		Silurian (after Silures, ancient inhabitants on the borders of England and Wales).
400	6.		Devonian (after Devonshire in England).
350	7.		Carboniferous (coal bearing).
270	8.		Permian (after Perm, a Province in Russia).
			Mesozoic Era
225	9.		Triassic (threefold).
180	10.		Jurassic (after Jura mountains on the borders of France and Switzerland).
135	11.		Cretaceous (from Latin Creta, meaning chalk)
			Cainozoic Era
70	12	**Tertiary**	Palaeocene (ancient-recent).
60	13.		Eocene (dawn of recent).
40	14.		Oligocene (sligktly recent).
25	15.		Miocene (less recent)
3	16.		Pliocene (more recent).
1	17.	**Quaternary**	Pleistocene (Ice Age).
	18.		Holocene (Beginning of modern times 10,000 years ago).

---

*After Dr. A. K. Dey, Geology of India.

Evolution of Life

Pre-Cambrian age, opens with the very beginning of the earth, when it starts as a whirling mass of gas, held by the gravitational pull of the Sun. The gases condense into liquids and liquids solidify to form the outer crust of the earth. The thick steamy vapour surrounding the earth fall down as heavy rains to produce the first oceans and rivers. The rocky crust, baked by hot winds and cooled by heavy rains weather down to form soil and sand.

First signs of life, represented by microcosms appear in this age. The earliest fossil remains of living organisms discovered have been dated 2.9 billion years back. These were found in Transvaal (S. Africa).

Cambrian age Rocks form on the earth. Climate conditions become warmer. Life exists only in the seas. Seaweeds remain the only plants. Worms, Jellyfish, starfish and sponges form the main groups of invertebrates.

Ordovician age, 500 440 m. years Seaweeds and invertebrates continue in the seas, but the first vertebrates appear.

Silurian age, 440-400 m years. Plants appear on land. More species of vertebrates appear in the seas. Plant life becomes more varied in the seas and coral reefs develop.

Devonian age, 400-350 m. yrs. Vegetation begins to thrive on land The first fishes appear in the seas The first invertebrate animals, millipedes, mites, spiders and wingless insects appear on land.

Carboniferous age, 350–270 m. yrs. Giant evergreen plants appear in tropical swamps Amphibious creatures evolve. Marine life in plants and animals show many varieties. The reptiles breed on land. Some insects develop wings.

Permian age, 270-225 m. yrs. The super-continent *Pangea* breaks up, creating *Laurasia* in the north and *Gondwana* in the south.

Deciduous plants able to withstand extremes of climate dominate Land animals increase in variety and numbers and end the dominance of the marine creatures.

Triassic age, 225-180 m. yrs Gondwana breaks up into two blocks 1) South America and Africa, with Arabia attached (2) Antarctica Australia and India.

Coniferous plants, cycads and ferns increase. Some cycads have embryonic flowers. The first mammals (warm blooded creatures) evolve from the reptiles. Dinosaurs, barely six inches long are present for the first time. The first flies and termites appear.

Jurassic age, 180-135 m yrs India breaks away from Antarctica and Australia and moves north. Australia is parted from Antarctica, South America and Africa seperate.

Reptiles increase in size and variety on land. The first birds evolve feathers from scales Huge reptiles weighing as much as 34 tons roam the earth Mammals remain small, no bigger than rats, and live in the woodlands.

Cretaceous age. 135 70 m. yrs India jams into South Asia lifting up the Tibetan Plateau and the Himalayan Ranges The Andes in South America, form

Giant reptiles like the dinosaurs dominate the land at the beginning of the age, but disappear towards the close Placental mammals (whose young are nourished directly by the mother's blood until birth) appear.

Palaeocene age, 70-60 m. yrs Striking climatic variations and physical changes occur, as a result of widespread elevation of land out of sea Many organisms perish The surviving specie give rise to fresh stocks, by specialisation of structure and habit to suit the changed environmental conditions.

Eocene age, 60 10 m yrs Flowering plants dominate. Marine reptiles become extinct. Some species of mammals like the whale and sea-cow adapt themselves to the sea. Most fish assume the present forms. The ancestors of the big mammals elephant, rhinoceros, horse and cattle appear. Primitive monkeys are seen.

Oligocene age. 40-25 m yrs. Land mass moves at the expense of the sea The Alps begin to form, The Himalayas, the highest mountain ranges on the world and also the youngest rise higher.

New species of crabs and snails evolve. The ancestors of cats, dogs and bears appear. Tail-less primitive apes are seen Plant-eating animals increase.

Miocene age, 25-3 m yrs Arabia splits from Africa and attaches itself to Asia. The Red Sea and the Gulf of Aden form. The Mediterranean is landlocked The Himalayas rise higher.

Bony fish increase in variety. Elephants and other mammals grow in size.

Pliocene age, 3-1 m. yrs. The continents assume the present forms. Land subsidence leads to the formation of the North Sea, Black and Caspian Seas and the Sea of Aral.

Marine life assumes more or less the existing forms. Mammals species decline in variety. Man-like apes and elephants thrive. Mammoth creatures on land and sea become extinct.

Pleistocene age, 1 million years. A period of abnormal and extreme climatic changes. Mountainous ice sheets cover the major portion of the earth. The ice melts periodically raising the sea level. Land masses, pressed down by ice begin to rise as the ice retreats. Melting ice forms the Great Lakes of America and the lakes in Southern Europe.

Many plants in Europe perish leaving only hardy trees like oak and elm. Ape-like creatures, the ancestors of man begin to make tools. Modern elephants, horses and oxen appear.

Pleistocene age (otherwise known as Ice age) is generally sub-divided into (1) Lower Pleistocene, between 1 million and 500,000 years ago; (2) Middle Pleistocene, between 500,000 to 100,000 years ago and (3) Upper Pleistocene, between 100,000 and 10,000 years ago.

Holocene age. This is the present geological age, which began 10,000 years ago. Ice retreats and warmer climates prevail over the major portion of the earth. Vegetation thrives. Man learns the domestication of animals and the science of cultivation.

DESCENT OF MAN

Hominidae

Biologically, man is placed with the apes and monkeys in the group called anthropoids. The anthropoids themselves are a subdivision of a bigger group, called the mammals. As a mammal, man has warm blood, hair and milk glands. As a placental mammal, his young are carried by the female for a long period prior to birth, attached to the uterus by a placenta, through which the child receives nourishment from the mother's blood stream.

The anthropoids along with lemurs and tarsiers make up the order, *Primates*. As a primate, man has grasping hands, excellent vision and a keen sense of hearing but a poor sense of smell.

The primates are divided into two families, the *Pongidae* and the *Hominidae*. The main distinction between the two is, that while hominidae can walk upright on their legs, the pongidae have to use their hands as well for locomotion. The pongidae includes gorillas, chimpanzees and orang-utans. The hominidae includes only one speci Man.

ANCESTORS OF MAN

Ramapithecus. (*Rama*-suggestive of India and *Pithecus*-meaning ape) is the earliest man-like primate discovered so far. The first fossil of this type was recovered by G. E. Lewis of Yale University from the Siwallk hills of India in the 1930's. It consisted of an upper jaw with some teeth attached. With an arched palate and a wide curve it differed radically from the jaws of the apes and was definitely man like. Lewis named his new find Ramapithecus. Some twentyfive years later, Leaky discovered a similar jaw, again, an upper one. This jaw was chemically analysed and found to be 14 million years old.

Ramapithecus lived towards the close of the Miocene age aud on our present evidence, was found both in India and Africa.

Australopithecus (*Austral*-Southern *pithecus*-ape) is the next in the line of human ancestors He appears about 10 million years after Ramapithecus, during the Pliocene age, about 3 million years ago. The fossils of the first Australopithecus was unearthed in Botswanaland (S. Africa) in 1924 by Prof. Dart. It was the skull of a child and nothing certain could be deduced from it. In 1936, adult remains of a similar species were discovered by Dr. Broom in Transvaal. Both types had brains, comparatively big for their size than that of the purely anthropoid ape. The Australopithecus, walked erect on two legs and apparently used some sort of tools.

Two types of Australopithecus have been found *Australopithecus africanus* and *Ausralopithecus robustus*, The first type (*africanus*) was lithe, slender and weighed about four to five stone. The second *(robustus)* was quite a giant, more than five feet tall and weighing between nine and ten stone.

Australopithecus Bosei. Subsequently, another species of the same kind was discovered in East Africa. This specie originally called Zinjanthropus was later named Australopithecus Boesi* but is better known as the Nutcracker man. His fossils were discovered by Dr. Leaky in Olduwai Gorge, in Tanzania in 1959. He had a huge palate with enormous molars, that has earned him the nickname, 'Nutcracker'. His fossils were dated by the potassium-argon method to about 1,700,000 years back.

Homo habilis (able man) This is another specie, which Dr, Leaky discovered in Olduwai Gorge, in 1964. *Homo habilis* is apparently older than the Nutcracker. His fossils are dated 2 million years ago, that is, 300,000 years prior to the Nutcracker. He had a bigger brain and was a meat eater. He made stone tools and could probably talk. Dr. Leaky believes that the able man's 'superior abilities' enabled him to survive while the Nutcracker became extinct. *Homo habilis* probably represents the transition from *Australopithecus* to *Pithecanthropus*—the erect ape man.

Homo erectus

Homo erectus or the erect man was originally called *Pithecanthropus erectus* (the erect ape-man). The name *homo erectus* was given later, when it was found, that homo erectus was more of a man, than an ape. He is probably the first specie, who represents the final divergence of man from ape.

Ice Age. Homo erectus came on the scene during the pleistocene (ice) age, when nature was in one of its most violent moods. The pleistocene age saw mighty glaciers, many thousand feet deep and miles and miles long, descending from the north pole and submerging much of the northern hemisphere. As these glaciers formed, absorbing water from the oceans, the sea level was lowered exposing new islands and land bridges, previously under the sea. The advancing ice sheets brought down temperatures all over the earth and plants and animals battled for survival in the intense cold.

During the million or more years that the pleistocene age lasted, there were four periods of advancing glaciers, called *glacial epochs* and three periods of retreating ice, called *interglacial epochs*. The last epoch, when ice finally retreated is called the *post-glacial epoch*. It was during this foreboding era of recurring glacial and inter-glacial epochs, that man, surmounting the rigours of the ice age, gained dominance over the world of living creatures.

Java Man is the first type of homo erectus to be discovered. His fossils were recovered from Java by Dr. Dubois in 1891, Other specimens were found by Dr. Koenigswald in the 1930's. The Java man had a much bigger brain than the Australopithecus man, though small in comparison to that of the modern man His skull was very thick, the forehead low and sloping, the brow ridges heavy and the chin receding.

Peking man whose remains were recovered from Chou Kou Tien Cave near Peking in 1927 and 1929 was akin to the Java man but had a bigger brain and more advanced human features. He not only made tools and used them but knew the use of fire as well. Java man and Peking man lived between 500,000 and 400,000 years ago.

Atlanthropus or the *Ternifine* man discovered in 1954 at Ternifine, Algeria, and the *Heidelberg* man found in Germany in 1902 were contemporaries of the Java man and Peking man, and were probably the ancestors of the Neanderthal man.

Neanderthal man whose skull and bones were first discovered in Neander Valley in Germany, 1856 is the most famous as well as the most controversial ancestor of man. The Neanderthalers flourished some 50,000 years ago and were spread out over a major part of the northern hemisphere, particularly in Western and Central Asia, Central Europe and North Africa. They were skilled tool-makers and expert hunters. They had some sort of a religion, associated with bears. They were lovers of beauty, as the flower burials in Shanidar Caves (Iraq) show.

The Neanderthal was of medium height with a stocky frame, beetling brows, broad face, big hands and large sets of heavy-duty teeth. The old view was that the Neanderthalers branched off from the main trunk of the evolutionary tree and had later become extinct or were exterminated. Recent theories however suggest that the Neanderthal was a direct ancestor of modern man. He did not become extinct. Nor was he exterminated by a more aggressive race. On the other hand, he interbred with other races and had in course of time become so thoroughly intermingled with them that he ceased to exist as a separate entity.

---

* The name Bosei has been given to this species in honour of Carles Boise, who financed the expedition.

The Neanderthalers are found in different types, ranging from the primitive or classic to the advanced or modern type. The skeletons unearthed from Mount Carmel (Israel) show both the primitive and advanced types. The advanced type of Mount Carmel man confirms the thesis, that the Neanderthaler was one of the ancestors of homo-sapiens or the modern man

Modern Man

Homo Sapiens (the wise man) comes on the stage during the last phase of the Pleistocenee age, between 20,000 and 30,000 years ago The best known type of homo sapiens or modern man, is the Cro Magnon man discovered at Cro Magnon (France) by Lartet in 1868. The Cro Magnon man found in France appears to have come originally from West Asia. Another specie of the Cro-Magnon type is the Grimaldi man, who it would seem, came originally from Africa. There must have been other breeds of the same type; for this type of men appear to have established themselves all over the globe in a comparatively short time. The Cro-Magnons, the Grimaldis and others of the type, looked very much like the men of today in physical features. They were tall, with long heads, very large brains, and short broad faces. Once established, the homo sapiens either eliminated or absorbed other types and have remained the dominant and the only type of man ever since.

Homo sapiens is most notable for his extremely rapid cultural advances. He improved upon the tools his forbears had left and created new ones, more efficient and sophisticated. He mastered the art of abstraction and the power to retain and reproduce images, long after the originals had disappeared. This led him into painting and sculpture He had an active awareness of the supernatural and practised some sort of religion. He loved beauty and delighted in adorning himself. He laid the foundations on which our modern civilization is built.

MAJOR ANTHROPOLOGICAL DISCOVERIES

Year of Discovery	*Name of Specie*	*Location*	*Anthropologist*
1856	Neanderthal man	Neander Valley, near Dusseldrof, Germany.	Fuhlrott
1868	Homo Sapiens (Modern man)	Cro-Magnon, Les Eyzies, France	Lartet
1890	Homo erectus-Java man	Kedung, Brebus, Java	Dubois
1907	Heidelberg man	Mauer, near Heidelberg, Germany	Schoetensack.
1921	Rhodesian man	Broken Hill, North Rhodesia	Armstrong
1924	Australopithecus africanus	Taung, Bechuanaland, Africa.	Dart
1927	Peking man	Choukoutein, near Peking, China.	Bohlin
1929-34	Neanderthal man	Mount Carmel, Israel	Garrod
1936	Pleisianthropus	Sterkfontein, Transvaal	Broom
1938	Paranthropus robustus	Kromdraai, Transvaal	Broom
1947	Homo Sapiens	Fontechevade, France	Martin
1954	Atlanthropus (Ternifineman	Ternifine, Algeers	Arambourg
1957	Neanderthal man	Shanidar, Iraq	Solecki
1959	Zinjanthropus boisei	Olduvai, Tanganyika	Leaky
1960	Homo habilis	Olduvai, Tanganyika	Leaky
1964	Lantein man	Kungwangling, Lantein, Shensi, China.	Wu Ju Kang
1965	Homo Sapiens	Grotte du Lazaret, Nice, France.	Octobon.

Differentiation of Races

We do not know how or when, the original stock of *homo sapiens* diverged into different races What seems most likely is that they arose as a result of gradual genetic diversification, following on the wide spread migrations and colonisation of new territories that occurred during the last phase of the age.

A clear relationship is seen between certain well defined pigmentation (colour) types and specific environments This suggests that the differences of pigmentation must have been the consequence of environmental adaptation. Thus *blonde* fair skinned people tend to go with a cool cloudy habitat; *brunettes* with strong sunlight, bright skies and climates like that of the Mediterranean area, the *black-skinned* with very hot non-forested regions, like the savannah of Africa, those with *brown or yellow skin* and crinkly or wavy hair, with the tropical rain forests of Asia and Africa.

Again, the width of the nostrils seems closely linked with climate, for it is a function of the nose to mitigate the temperature of the air, before it is drawn into the lungs. It is therefore not surprising to note the narrow nostrils of the Eskimo and the North European -they live in very cold climates Similarly the medium nostrils of the Mediterranean peoples show affinity to a temperate climate, while the broad nostrils of the Negroes indicate very hot climates. Very cold air has to be inhaled in small quantities, so that it may be warmed to the right temperature, before it reaches the lungs. Cold climates therefore, require narrow nostrils. The warm air of the tropics can be inhaled in any quantity, since it needs little or no warming up. Big nostrils therefore suit the tropics.

Similarly, cold climates tend to buiid bulkier bodies. Biggar bodies,have comparatively lesser surface area, (in proportion to their total mass) than smaller bodies A smaller surface area, is of greater help in conserving internal body heat, which is essential in cold climates. Thus, while the men in the cold north, grow big in stature, the men in the tropics remain medium sized or puny,

Classification of Races

Classification of races, is in the main, a futile effort, because no race has maintained its pristine purity The races have inter-bred from the earliest times. Even the conquering races, who thought themselves superior, openly intermingled with the conquered people. The Sons of God, as the Bible says, saw that the daughters of men were fair Thus, wholesale miscegenations have taken place, throughout history

All the same, various attempts have been made to classify the human specie into races. Five basic races are recongnised as follows:—

(1) Australoid, presumably descended from the *Java man* (2) Capoid, from the *Ternifine man* (3) Caucasoid from the *Heidelberg man* (4) Congoid from the *Rhodesian man* and (5) Mongoloid from the *Peking man*

BEGINNINGS OF CIVILIZATION

Twilight Civilization

The Australopithecus or Southern Apes and the subsequent specie, Australopithecus Bosei and Homo bahilis, may be regarded as the earliest precursors of human civilization. All these species were predominantly apish although they possessed the human characteristic of walking erect and the capacity for making tools and using them The culture that these species evolved through thousands of years is called Twilight civilization, because it represents the dim beginnings of human culture. This civilization is also known as Pebble culture because the tools that they used were mostly pebbles flaked at one end to form cutting edges·

Paleolithic Civilization

The advent of Homo erectus marks the opening of Paleolithic civilization, or Old Stone Age in the Middle Pleistocene Age (between 500,000 and 100,000 years ago). Java man, Peking man and Ternifine man who represented the earliest paleolithic culture, made tools of stone and bone to hunt animals and knew the art of cooking and the use of handaxes.

In upper Pleistocene age 100,000 to 50,000 years ago, a superior culture was evolved. *Neanderthal man*, *Rhodesian man* (discovered in 1921 in Broken Hill, Rhodesia) *Saldanah man* (discovered near Saldanah Bay, Cape Province, S. Africa in 1951) and *Solo man* of Java, are the pioneers of this civilization. They made caves their habitation and buried their dead in caves. Though derided as "cave men" by the moderns, they acquired great skill in hunting and cooking and were passionate lovers of natural beauty.

Modern Man. Some 30,000 years ago, during the last phase of the Pleistocene age (Ice age) the Cro-magnon and allied species, the ancestors of modern man, emerged. These people made significant advances. Their implements were more complicated. including knife-blades, engraving tools of different types and beautifully carved barbed harpoons. They were the creators of several different cultures, like the Aurignacian, Silurian and Magdelanian. Their interests extended beyond the elementary needs of food and shelter to painting and sculpture. The paintings on the walls of the cave of Lascaux (France) are out standing examples of their artistic skill. They beautified themselves with necklaces and other ornaments and practised magic rites and ceremonies.

As the Pleistocene age drew to a close, the Palaeolithic civilization died out and was replaced by the Mesolithic civilization.

Mesolithic (Middle Stone) Age
(10,000 - 8,000 B. C.)

The Mesolithic people who flourished after the end of the Pleistocene age, had to contend with a world, which was altogether different geographically and biologically, from the world of their Palaeolithic ancestors. In the cold north (Europe), most of the animals on which Palaeolithic hunters lived had either migrated or become extinct. This compelled the Mesolithic people of the north to take to fishing to supplement their diet. In the warm south (Middle East) the Mesolithic people gathered wild wheat and barley, domesticated wild animals like dogs and took to breeding goats and sheep. It was these people who laid the foundations which were to revolutionise the Neolithic man's way of life - agriculture and stock breeding.

Neolithic (New Stone) Age
6000—4000 B. C.

The Neolithic age is so named because during this period man still relied mainly on stone-made weapons and tools, though the weapons and tools were much more developed and highly sophisticated. The Neolithic people, inherited a comparatively advanced culture–the cumulative heritage of the Palaeolithic and Mesolithic civilizations. They used ingenious tools and weapons and were masters of the art of domestication of animals. Nevertheless, they remained essentially nomadic, wandering from place to place, in search of food and pasture.

Lonar Crater

Lonar Crater in the Buldana District of Maharashtra, has been in the news for sometime. It was at first believed to be volcanic in origin, but volcanic activity had ceased in the Deccan Plateau, millions of years ago. The Crater, appeared to be only 50,000 years old. The researches carried out recently by the Geological Survey of India, show that the Lonar Crater has been created by the impact of a meteor.

The Lonar Crater resembles the famous meteor crater in Arizona USA which was discovered in 1891 and identified as a meteor crater in 1896. The Arizona crater is supposed to be the largest impact crater on Earth. The Lonar Crater is as big, if not bigger than the Arizona Crater, as the measurements show.

	Arizona	*Lonar*
Diameter	*4150 ft.*	*1830 m.*
Depth	*575 ft.*	*150 m.*
Height of the Rim	*130 155 ft.*	*20 m.*
Age	*27000 years*	*50000 years*

The Lonar Crater is important for two reasons. It is the only known example on the Earth, of an impact crater in basalt. Secondly it reveals many characteristic features of lunar craters.

The basic discoveries of the neolithic age are the domestication of animals, the cultivation of plants and the development of industries of pottery and weaving. The first animals to be domesticated were sheep, goats, cattle and pigs. In Europe, it seems that the dog was the first animal to cast in his lot with man. The ass was probably the first beast of burden. The horse was about the last to be tamed.

The discovery of agriculture meant that man ceased to be a wandering food gatherer. He became a food producer, tied down to land. Agriculture made it necessary to have new implements—the hoe, the plough and the scythe. Above all, it involved a settled life which meant permanent dwelling houses. The first houses were probably of reeds and skins. Then came wood and sun-baked bricks and stones. Pottery, a very early discovery, was revolutionised by the invention of the potter's wheel. Basketry and textiles developed more or less simultaneously. Textiles underwent speedy technological changes leading to the invention of the loom.

The industrial symbol of the Neolithic age is the polished stone axe, which could be used for cutting trees and killing animals and for fighting against human enemies as well, The neolithic period witnessed the making of highly sophisticated implements—polished stone axes with handles, knives, daggers, arrow heads, battle axes, reaping knives, bone and ivory needles, pins, combs etc. This age merged slowly and imperceptibly into the Chalcolithic age.

Chalcolithic (Copper Stone) Age (4000-3000 B. C.)

The Chalcolithic age was also the age of the earliest civilizations when men first established settlements in the river valleys.

Copper was the first metal that man discovered, but we do not know exactly when. However, copper was in common use around 3000 B C. This metal seems to have been first discovered in eastern Iran, probably in Elam Its use soon spread to Asia Minor, Sumeria, Egypt and the Indus Valley, reaching China much later. The discovery of copper led to the discovery of other metals like tin, lead, antimony and zinc. For, copper ore was usually found mixed with them. This promoted the making of alloys like bronze. When bronze was discovered it rapidly displaced copper, for it was stronger and could be cast into any shape or size.

Copper,not being available everywhere, it became necessary to transport it from long distances. Means of transport had therefore to be devised. The ox and the pack ass were too slow and too clumsy for long distance transport. The wheeled cart and the sailing ship therefore came into vogue. It was only a matter of time before the horse drawn chariot appeared. The stage was set for the emergence of the great civilizations of Sumeria, Egypt, the Indus Valley, Crete, Mycenae, Asia Minor, Iran and China.

THE FIRST GREAT CIVILIZATIONS (3000-1000 B. C.)

The City State

HUMAN civilization, so far as we know, first appeared within a narrow geographical compass that covered Egypt in the west, Indus Valley in the east, Asia Minor in the north and Iraq and Iran in the south. From this centre, civilization radiated outwards, reaching the Mediterranean seaboard and islands in the west and China in the east, around 2000 B. C.

The first cities were very small affairs centred round temples. The high priest of the temple was also the chief of the city. Very soon, some temples became more prominent than others and the high priests of these temples became the first among the city chiefs or in other words, kings. Lesser temples became the auxiliaries of the great temple and the City State came into being. Among the earliest city states to be formed. were those of Sumer, Egypt and India.

Sumeria

Sumeria was in the lower valley of the Euphrates and Tigris, in the southern half of Mesopotamia We do not know who the Sumerians were. They were a broad-headed race, thickset and short in stature, with fleshy faces and a big nose prolonging the line of the forehead without any intervening depression. Their eyes were widely set apart and slanting. They have been compared by some to the Turanians of today and by others to the Dravidians of India.

Sumeria had a hectic history. The original Sumerians were overwhelmed by a number of foreign conquerors, through successive centuries—the Akkadians, Babylonians, Assyrians, Chaldeans etc. But all through these conquests and turmoil, the old Sumerian civilization remained intact being supplemented and reinforced by the conquering races.

Egypt

The racial origin of the Egyptians is also a matter of dispute. Some regard them as a conquering Asian race acquainted with metallurgy and armed with superior weapons, who easily triumphed over the tribes inhabiting the Nile Valley in neolithic times. The history of Egypt, unlike that of Sumeria was more or less smooth. Except for the invasion of the Asian tribe Hyksos in 1790 B. C. and their occupation of Egypt till 1573 B. C Egypt was ruled by a succession of indigenous dynasties, under whom the old Egyptian civilization grew up to its full dimensions.

India

The Indus Valley civilization represented by Mohenjadaro and Harappa, is the third of the oldest civilizations known. Some people hold it to be older than the Sumerian and Egyptian civilization. It is not known who the builders of the Indus Valley Civilization were. Most people think that the Indus Valley people were Dravidians, a Mediterranean race. The fortunes of the Indus Valley Civilization were different from those of Sumeria and Egypt. It seems that this civilization at the height of its prosperity suddenly disappeared. The mystery of its disappearance will be cleared, if and when the Indus Valley script is deciphered.

Expansion of Civilization

Anyhow, the Sumerian, Egyptian and Indus Valley civilizations remain the supreme human achievements of the fourth millennium B C, But civilization was expanding. Around 2000 B C. the Phoenicians settled on the Syrian coast and laid the foundation of a maritime empire in the Mediterranean. Hittites established a kingdom in Asia Minor, which later expanded eastwards and southwards At Mycenae (Greek mainland) and Crete an adjoining Island, other tribes, about whom also we know very little, built cities that rivalled those of Sumeria and Egypt in splendour.

RELIGIONS

Religions know neither geographical barriers nor national boundaries. Very often, they spread out from the lands of their origin and sometimes like Judaism or Buddhism become practically extinct in the places of their birth. Nevertheless, they have been powerful factors in moulding civilization itself and in shaping national and international policies

Hinduism, the age old religion of India has left its permanent impact on Indian life and culture. Buddhism, an exile from its homeland, India, worked wonderful reformations in the life and culture of the peoples of South East Asia and China Christianity and Islam spread like wildfire among the peoples of Asia and Europe, kindling latent fires and opening fresh chapters in the history of the world.

Apart from the leading religions of the world, there are a host of tribal and primitive religions, whose votaries are limited to a few hundreds or thousands at best. These religions are found principally among the aboriginal tribes of Australia, the Americas, India, Burma, Mongolia, Siberia, Indonesia and Africa.

Buddhism

Buddhism was founded by Gautama Buddha who lived between 623 and 544 B. C. Gautama, otherwise known as Siddhartha was the son of an Indian prince, Sudhodana, chief of the Sakyas. Even as a child he was given to contemplation. The sorrows and sufferings of the world tormented his loving heart and he abandoned his princely home, his wife and child, and started in pursuit of enlightenment at the age of 29. After years of wandering and contemplation Gautama at last found enlightenment while meditating under a great peepul tree. From that day, he came to be known as the Buddha or the Enlightened One.

Buddha preached that emancipation from the cycle of rebirths, i e., *Nirvana* can be attained by a path of self-purification. He attached little importance to rituals and ceremonies, in which the Brahmin priests indulged. He does not appear to have even envisaged the existence of a Supreme God. He preached in the vernacular of the people, a simple doctrine of love and mercy, which appealed to all.

Buddhism is essentially a religion of kindness, humanity and equality. It denounces all claims to superiority on grounds of birth or caste. The eminence or lowness of men is determined by their own conduct and actions.

Buddhism laid emphasis on four noble truths. The first is that all existence is full of suffering; the second, that suffering has a cause, the third, that all suffering can be ended; and the fourth, that there is a way to end suffering. The cessation of suffering is Nirvana. Nirvana literally means extinction, not extinction of self but of suffering.

Nirvana can be achieved by following the eight fold path. The eight-fold path consists of (1) Right view (2) Right mental resolve (3) Right speech (4) Right action (5) Right livelihood (6) Right effort (7) Right mindfulness (8) Right concentration.

This eight-fold path is the Middle Path-midway between the path of austerity and self mortification and the path of luxury and self indulgence.

Buddha organised the *Sangha* a fraternity of monks and nuns to propagate his teachings Women were admitted to this sangha, a very revolutionary step in those days. The Buddhist monks and nuns had no private or personal property of their own They were '*bikkus*' who lived on the alms given by the faithful. All things in the monastery belonged to the community or the sangha.

Buddhist Councils. The teachings of Buddha were not written down or codified during his life time Consequently, disputes arose among his disciples as soon as Buddha died. These disputes were resolved by summoning councils

There were four ecumenical councils of the Buddhist church. These were followed by a number of provincial councils in Sri Lanka, Thailand, Burma and elsewhere.

Hinayana and Mahayana. Two or three centuries after the death of the Buddha, we find the Buddhist church divided into two broad schools, the Hinayana and the Mahayana The Hinayana school prided itself on maintaining the teachings of Buddha in their original form As Buddha visualised it, Buddhism was primarily a system of ethics. It had no room for theism or a theistic way of life. Man's salvation lay in his own right efforts and wisdom, not in prayer or incantations. This was the basic philosophy of the Hinayana school.

The Mahayana school converted the human Buddha -Sakya Muni—into an eternal and supreme deity, presiding over the world and succouring his devotees. The historical Buddha was an emanation of the *Adibuddha*, the Eternal God, who came down to the earth to preach Dharma and save mankind from its sins. It was necessary to pray to the Buddha and worship him so that he could guide man in the right path and save him from evil. The original agnostic Buddhism, thus became confirmed theism in the hands of the Mahayana school. Though strictly Mahayana represented a debased form of Buddhism, it is the Mahayana group which became popular and grow in prestige and power.

Mahayana Buddhism is prevalent in China, Tibet, Korea and Mongolia. Hinayana Buddhism is prevalent in Burma, Sri Lanka, Cambodia and in other parts of Indo China.

The most sacred places of Buddhism are Lumbini in Nepal, where the Buddha was born; the Bodh Gaya, (UP) where he received enlightenment and Kusinagara (UP) where he attained *nirvana.*

Christianity

Christianity founded by Jesus Christ now commands the largest following in the world. Christ was born in BC 4 in Judea He started preaching about the Kingdom of God when he was thirty His activities roused the opposition of the Jewish high priests who accused him of blasphemy. He was crucified under the orders of Pontius Pilate, the Roman Governor After three days, Christ was resurrected from the dead. With the Resurrection of Christ, his disciples took heart and went about preaching the Kingdom of God to all the peoples of the world

Christianity spread throughout the Roman Empire where it was made the state religion in the 4th century AD. Later, the church split into two broad groups-the Western Church under the Pope in Rome, and the Eastern Churches under the Patriarchates of Antioch, Alexandria and Constantinople Still later, further disruptions took place. The Roman Church was broken up by Protestantism, while in the Eastern Churches, many communities like the Armenians, Ethiopians, Russians and Indians set up their own Patriarchates.

Jerusalem, where Christ lived and preached is the most sacred place to Christians all over the world.

Confucianism

Kung Fu Tsu, better known as Confucius was born 551 BC in China. Even as a young man, he had an ardent thirst for knowledge. When still in his youth, he met and talked with Lao-tse who was then a famous figure Struggling through poverty, Confucius first became a minor civil servant and later rose to be the magistrate of a State. His brilliant administration evoked the jealousy of others, who conspired to bring about his dismissal in 496 BC. Thereafter he wandered about penniless and homeless, until in 478 B C he died, aged seventythree.

After his death, his sayings were collected in the *Analects* and he was honoured throughout China, as a deity ranking with the deities of Heaven and Earth. Confucius was a moralist rather than the founder of a religion. He conserved, systematised and taught the age-old teachings in China. He advocated regularity in life, temperance in food and drink and emphasised the importance of learning, loyalty and truthfulness. He formulated a golden rule of reciprocity, "what you do not want done to yourself, do not to others"—just a step short of the Lao-tsean and Christian doctrine of returning good for evil.

Peking is the city sacred to the adherents of both Taoism and Confucianism.

Hinduism

(See India

Islam

Mohammed, the founder of Islam was born in Mecca in AD 570. He lost his parents in early childhood and was brought up by his grandfather. Mohammed felt revolted by the idolatry and licentiousness of the people around him. He condemned idolatry and started preaching the doctrine of "One God". He raised a number of enemies by his preaching and was at last compelled to flee from Mecca to Medina in A D 622. Hejira or the Mohammedan Calendar begins from this date (July 16). At Medina his followers increased and he was confident enough to return to Mecca. Thereafter the believers swelled rapidly and before his death in AD 632 Islam had spread throughout Arabia The teachings of Mohammed are contained in the Holy Book, Quran, which is one of the finest literary works in Arabic. The Quran draws largely from Judaism and Christianity with whose theology Islam has much in common.

Muhammedanism later split up into two sects, Sunnis and Shiahs. Sunnis constitute a mojority of the Muslim population and are found in Asia, Africa and Europe. The majority of the Shiahs is found in Iran, Iraq and Afghanistan.

Mecca is the sacred city and place of pilgrimage for all Muslims.

Jainism

Jainism derives its name from Jaina (the Conqueror), the surname of Vardhamana Mahavira. Mahavira like Buddha, belonged to a princely family in Vaisali. At the age of 30, Mahavira renounced the world and spent 12 years in austerity and meditation in search of truth. At last, at the age of 42, while meditating under an asoka tree, he received enlightenment. He was thereafter known as Jaina, the Conqueror.

According to Jain legends, Mahavira was born in the beginning of the sixth century BC.* The actual dates of his birth and death are hotly disputed and may best be left alone.

Mahavira is regarded as the last of the prophets of Jainism, the twentyfourth Tirthankara (ford makers across the stream of existence). The 23rd Tirthankara, Parsua, the predecessor of Mahavira, appears to have lived 250 years before Mahavira. Parsua enjoined his followers to observe four vows: non-injury, truthfulness abstention from stealing and nonattachment. Mahavira added a fifth injunction— Brahmacharya or continence. He also emphasised the need for discarding all external things including clothing if compelte freedom from bonds—*Moksha*—is to be attained.

There are 24 Tirthankars, holy men, who show the others the way of salvation. The first of them was Rishaba and the last, Mahavira.

Jainism preaches that by following the threefold path, all souls will be released from the cycle of births and deaths and will reach the pure and blissful abode above (Sidha Sala). The threefold path consists of three jewels (triratna) right belief, right cognition and right conduct.

After A D 82 Jainism split into two groups, the Digambaras and the Svetambaras. The Digambaras wore no clothes, while the Svetambaras wore white clothes. Both groups believed in overcoming the senses by meditation and penance

The Jains have many places of pilgrimage in India. The most important of them are the mountain of Samata, near Parsanath in Bihar, where Parsua is said to have attained nirvana; Papapuri or Pavapuri where Mahavira died; Mount Abu in Rajasthan and Shravenbelgol in Mysore, where the temples of Tirthankara Parsua and Neminath are situated and the high monolithic statue of Gomateshwar, son of Rishala stands.

Judaism

Judaism, the religion of the Hebrews was in existence long before its first prophet and law giver Moses came on the scene. The first historical figure among the Hebrews is Abraham, who left Ur in Chaldaea with the Hebrew tribe, about 2000 BC. After a long period of wandering in the Arabian desert the Hebrews at last settled in Egypt. In Egypt however, they were enslaved by the mighty Pharaohs. It was left to Moses to liberate the Hebrews from Egyptian bondage and to lead them to a land of milk and honey promised them by God. On the way, at Mount Sinai Moses received the 'Ten Commandments' from 'Yahweh' or Jehovah, the Supreme God. By the time the Hebrews had settled in the Promised Land, the first five books of Moses had been written.

---

* "The 2500th Nirvana Anniversary of Mahavira is to be clebrated as a national festival for one year, commencing on 13th November 1974".

The Hebrews organised themselves into the Kingdom of Israel round about 1000 BC. In 586 BC Nebuchadnessar conquered Israel and carried off the Hebrews into the Babylonian Captivity. With the conquest of Palestine by Cyrus, the Hebrews were resettled in Israel. It was during this period that the writings of the Prophets and the Psalms were codified The Talmud, which is a collection of detailed laws for the guidance of civil, domestic and social life, was also completed during this period. The Law, the Prophets and the Psalms remained as separate holy books until the time of Christ, when they were put together as the Hebrew Bible or the Old Testament.

Judaism is a simple religion which aims at a moral life. To the Jews, right conduct is more important than right belief. According to the Talmud every good man is assured of heaven, the gentile who observes the moral law being the equal of the High Priest. Judaism is free from sentimentalism and is averse to self imposed suffering, idleness and asceticism. Jerusalem is the Holy City of the Jews,

Shintoism

Shinto is the national religion of Japan. The word "Shinto' means "the way of the spirits", the underlying principle being ancestor worship. It must have evolved gradually, accumulating fresh material as ages passed without any religious reformer directing it or altering it. It has no sacred books or a moral code It is the religion of the followers of the Mikado, the Japanese Emperor. The Mikado is in fact, the focal point of the religion, the only God that it knows. There are however innumerable deities. Except for certain rituals developed through the ages, Shinto has no religious content or appeal.

The central shrine of Shintoism is at Ise, in Central Japan' to which all devout Japanese make pilgrimages. Shintos are found almost exclusively in Japan.

Sikhism

The Sikh religion was founded by Guru Nanak who lived in the Punjab, between AD 1469 and 1538. He was very much troubled at the frequent quarrels between Hindus and Muslims. He preached that there was only one God for Hindus and Muslims, and tried to work out a synthesis of the two religions. His mission became popular and he very soon had a large following. He travelled extensively, going as far as Mecca, and was in frequent contact with the leading sages of Hindu and Muslim religions. On his death, he was succeeded by his disciples who became Gurus in their turn. The later Gurus made the Sikh community a martial race and a Sikh state soon came into existence With the growth of the British Empire in India, the Sikh political power disappeared. The majority of the Sikh population is found in the Punjab and Delhi.

Their most important sacred place is the Golden Temple at Amritsar.

Taoism

Lao-tse, the founder of Taoism was born in China about the sixth century BC. Lao-tse put down his teachings in a book called Tao-Teh-King, which became the Taoist Bible. "Tao" originally meant "road" or way, but later came to signify the perfect reality Taoism preached goodness, simplicity, purity and gentleness in everyday life. The three jewels of Taoism are compassion, moderation and humility. Lao-tse, taught what Christ later preached, the return of good for evil. "When you are reviled, cherish no resentment, be kind and generous without seeking any return".

Lao-tse's philosophy, highbrow as it was, failed to evoke response in the common man. The disciples of Lao-tse used "Tao-Teh-King" as a source book for magic and Taoism degenerated into mere ritual By the middle of the second century BC Taoism had debased itself so far as to deify Lao-tse, who was worshipped with sacrifice.

Zoroastrianism

Zarathushtra or Zoroaster, the founder of Zoroastrianism was born in Media (modern Iran) about 660 BC. He thought that life was a struggle between the forces of good and evil. The spirit of good was Ahura Mazda with its helper Mithras, the Light. The evil spirit was

Angra Mainyu or Ahriman, the Lie Demon. Man could not be neutral in the struggle He had to fight for right and live a righteous life. Those who lived righteously went to a paradise which was a state of immortal holiness in thought, word and deed The impious were condemned to an eternal hell of evil thoughts and deeds and physical torment By 500 BC Zoroastrianism had become the leading faith in Persia and Media.

The sayings of Zoroaster were gathered into a book, called Avesta or Zend Avesta which became the Bible of the Persians

Zoroastrianism received the royal patronage of the Achaemenian dynasty founded by Cyrus the Great Darius the Great openly proclaimed his belief in the teachings of Zoroaster. Alexander the Great defeated the Achaemenians and destroyed their empire in 331 BC With the loss of royal patronage, Zoroastrianism started to decline. The Arab invaders, who overran Persia in the 7th cent AD persecuted the native Zoroastrians and large scale migrations to India took place between AD 716 and 936.

The Zoroastrian religion however did not entirely disappear from Persia (Iran). It is estimated that by the end of the 18th century there were some 150,000 Zoroastrians in Iran During the 19th century, under the despotic Qachar dynasty the Zoroastrians suffered greatly and their numbers steadily dwindled. With the accession of Reza Shah Pahlavi to the Iranian throne the lot of the Zoroastrians improved greatly. Today there are about 27,000 Zoroastrians in Iran, the majority of whom live in Teharan The others live scattered in different places in Iran.

The Zoroastrians who fled to India during the 8th century, were the ancestors of the present Parsi community in India. The Parsis in India who number around 100,000 represent the flower of the present day Zoroastrian community.

Table 29

Estimated Membership of the Principal Religions of the World

Religions	*North America**	*South America*	*Europe***	*Asia*	*Africa*	*Oceania*	*World*
Total Christian	224880000	168258000	497717700	76468000	100692600	7317100	985363100
Roman Catholic	128705000	164527500	190488000	46106000	35178000	1767100	566771600
Eastern Orthodox	3900000	50000	92927500	1920000	25000000†	80000	123877500
Protestant	92275000	3680500	124302200	28442000	40514600	5500000	294714300
Jewish	6160000	784000	4390500	2766000	310000	80000	14490500
Muslim	168000	400000	24347200	331114500	114784000	525000	471338700
Zoroastrian		-	.	125000			125000
Shinto	30000	100000	--	60000000	-	--	60130000
Taoist	15000	18000	--	51250000		—	51283000
Confucian	95000	100000	50000	304300000		50000	304595000
Buddhist	200000	160000	18000	301058000	-	—	301436000
Hindu	55000	700000	180000	469988500	1069000	375000	472358500
Total	231603000	170520000	436703400	1597070000	216846600	8377100	2661120100

---

* Includes Central America and the East Indies.

** Includes the USSR in which the effect of a half century of official Marxist ideology upon religious adherence is much disputed among specialists. There are 17 officially Marxist governments among nations in the United Nations, and in all cases it is difficult to estimate religious adherence.

† Including Coptic Christians.

Source: *Britannica Book of the Year. 1972.*

LANGUAGES

Nnmber of Languages

No one has yet taken a satisfactory count of the world's languages. Several surveys have been made and several figures have come out. The latest is the survey published by Mrs. Jacqueline Marx of Brazil (1973) which puts the total number at 4,000. Another estimate puts it down as 5,800. Some French and American linguists have listed a total of 2,796 languages. We have adopted this figure as a working total

Of the 2,796 languages mentioned, over 1,200 are spoken by American Indian tribes, most of which do not number more than a thousand people. African-Negro groups speak some 700 different languages while the natives of Australia, New Guinea and other Pacific islands account for as much as 500 languages of their own. Add to this an estimated 200 minor languages of Asia of unknown origin and we find that the total number of the world's major languages (spoken by a million or more people) hardly exceed 160; in other words, the overwhelming majority of the world's languages, say 85 per cent, are spoken by numerically small groups, while some 15 per cent represent major languages.

Language Families

The World's languages considered in this manner fall into 10 broad groups on the basis of their origins. 1. Indo European 2. Semito-Hamitic 3. Sino-Tibetan 4. Dravidian 5. Ural-Altaic 6. Malayo-Polynesian 7. African-Negro 8 American-Indian 9 Caucasian 10. Miscellaneous.

1. Indo-European Group*

The Indo-European languages may be subdivided into four major divisions.

(a) Germanic, including English, German, Dutch, Swedish. Danish, Norwegian and Icelandic cover more than 400 million speakers.

(b) Romance, which includes French, Spanish, Portuguese, Italian and Rumanian come close to 400 million speakers.

(c) Balto Slavic, includes Russian (130 million speakers), Polish (40 million), Ukranian (40 million), Czech (14 million), Slovak (14 million), Serbo Croatian (14 million) and Bulgarian (8 million).

(d) Indo-Iranian language beginning from Iran (Persia) with the semi-nomadic Kurdish which covers the frontier regions of Turkey, Iran and Iraq, sweeps eastward across Iran through Afghanistan, Baluchistan, and India, down to Sri Lanka Its speakers number nearly 500 million including mnre than half of India's population and practcally the whole of Pakistan's 100 million, with Iran's 22 million, Afghanistan's 17 million and nearly half of the 11 million people of Sri Lanka.

The Indo-Iranian group may be conveniently divided into Iranian and Indic or Indo-Aryan branches. *Sanskrit* of the Indic branch is the original Indo-Iranian language that was brought into India by the Aryan immigrants. It is the earliest of the Indo-European languages to appear in recorded form. The ancient vedic hymns in Sanskrit go as far back as 2,000 B C, antedating Latin, Greek, Avestan (ancient Persian) and Chinese by centuries.

2. Semito-Hamitic Group

The Semitic tongues are so-called, because they are said to have originated with the descendants of Shem, one of the sons of Noah, who according to the Bible, survived the Great Deluge, while Ham's another son of Noah) descendants are supposed to have given rise to Hamitic tongues. The Semito Hamitic languages are today spoken by some 125 million people and cover the Arabian Peninsula, Iraq, Syria, Israel and Jordan in Asia In Africa it covers the whole of the north from Egypt to Morocco and further down, the countries of Ethiopia, Eritrea and Somaliland.

In ancient times the Semitic languages included Akkadian (the language of Babylon and Assyria), Canaanite, Moabite, Phoenician Punic (Carthage), Hebrew, Aramaic (Syriac) and early Arabic of the Arabian Peninsula. The Hamitic branch which in those days dominated

---

* The term Indo-Hittite is now preferred to Indo-European. This will include Anatolian language and Indo-European proper.

Africa included ancient Egyptian and present-day Lybian and Berber tongues. In Ethiopia, Semitic and Hamitic are found intermingled. The Cushite tongues like Galla and Somali are Hamitic, while Amharic and the allied Tigrina and Tigre are Semitic languages.

Arabic, once the discarded language of the Arabian Peninsula, became an overpowering force with the rise of Islam. It spread all round, as Islamic political power expanded. With the Moorish conquest of Spain, Arabic passed on to Europe where it has left its impact in the shape of many words and place-names of Arabic origin In North Africa, Arabic replaced African Latin, which at an earlier period had driven out the Carthaginian Punic It produced Maltese, which is a queer mixture of Arabic and Italian Moving northward and eastward from Arabia, Arabic became a spoken language in the countries of the Near East, and with its impact practically revolutionised established languages like Turkish, Persian, Hindustani and Malay. In other words, wherever Islam made good, in the Balkans, Central Asia, Western China, India, Malaya, Indonesia, the Philippines, Central and East Africa, Arabic held sway as the dominant language resulting in a wonderful transformation of local languages. While the actual number of Arabic speakers is probably around 90 million, it is quite possible that linguistically Arabic influences many more millions of speakers

3. Sino-Tibetan Group

The Sino-Tibetan languages comprise about 760 million speakers of which *Chinese* alone accounts for some 700 million Chinese is not only the greatest but also the earliest of these languages to appear in written records. Some of the Chinese records go back to 500 BC. According to some linguists written Chinese records go back to 2000 B C. The great majority of Chinese (560 million) speak *Mandarin*, now the national language of China. The remaining 200 million speak other dialects, the most important of which are *Cantonese* (Canton), *Wu* (Shanghai) and *Min* (Fukan). *Tibetan, Burmese* and *Thai* are the other outstanding members of the Sino-Tibetan group *Tibetan* is first seen recorded in the 9th century AD. *Burmese* in the 12th and *Thai* in the 13th.

Japanese. Most people regard Japanese language as an offshoot of Chinese. But there is no linguistic support for this assumption No doubt, Japanese has borrowed heavily from Chinese, particularly in the matter of script. It would appear that the Chinese characters were introduced into Japan by Chinese or Korean missionaries in the 7th or 8th century AD. These characters were made to correspond with the spoken language of Japan which totally altered the reading of the script. The pictogram for "man" for example is read, "jen" in Chinese but "tito" in Japanese. Japanese is mainly confined to the islands of Japan with about 100 million speakers.

Korean appears to be native to Korea, though it bears a great similarity to Japanese on the one hand and is heavily indebted to Chinese on the other.

Vietnamese is a mystery tongue. Some scholars connect it with the Sino-Tibetan family while others place it in a separate Austrasiatic family with the Munda of India and the Mon-Khmer of Cambodia

4. Dravidian Group

The Dravidian family of languages is more ancient than the Indo-European. Perhaps it has some relation to the ancient languages of the Semito-Hamitic group. In all probability, it was the language of the Indus Valley people, who had evolved a high civilization as far back as 4000—3000 BC. Apparently, this Dravidian stock got scattered, with the immigration of the Indo-European (Aryan) people into India. However, substantial areas in upper Deccan and practically the whole of lower Deccan and South India, remained under Dravidian influence Consequently, South India, including the Deccan, became the special preserve of the Dravidian languages and culture (See India).

5. Ural-Altaic Group

The Ural-Altaic language covers a vast expanse of territory with great breaks in between from Lapland in North Europe to Manchuria in Asia. In North Europe, the language is centred in Lapland, Finland and Estonia. Then we see it in Hungary and the Danube valley from where it extends to the Balkans. Thereafter, it sweeps through Eastern European Russia, Siberia, Turkestan, Turkey and Mongolia to Manchuria. Considered in relation to this extensive area, the speakers are few, almost a 100 million, hardly the number of the Japanese speaking population. The Ural-Altaic family of languages is practically a late-comer to the families of languages. *Hungarian* first appears on record only in the 13th century AD and *Finnish* in the

13th century but *Turkish* appears in inscriptions in the 8th century AD. *Mongol* makes its written appearance along with Hungarian, somewhere in the 13th century AD. *Manchu*, the language of Manchuria. took much later to come on record.

6. Malayo-Polynesian Group

The Malayo-Polynesian family stretches across the South Pacific and the Indian Ocean, from Eastern Island, off the cost of South America, to Madagascar, off the coast of Africa, diverging to such diverse areas as Hawaii, Samoa, Tahiti. New Zealand, the Solomon Islands, the Philippines, Indonesia and Malaya. The total number of speakers of this extensive family comes nearly to 130 million. Geographically, the Malayo-Polynesian group has been divided into Indonesian, Melanesian, Micronesian and Polynesian*.

Maori is the original Polynesian tongue of New Zealand and is spoken by some 100,000 natives. Malagasy is the language of Madagascar and is spoken by nearly 5 million people

Malay which is the language of common intercourse between Malaya and Indonesia, has over 70 million speakers. In the 13th century AD when Malayans were converted to Islam, they adopted the Arabic alphabet with some modifications.

Indonesian is practically an ocean of languages with dialects numbering as many as 300. For example in Java, where 45 million people speak Javanese, there is a 14 million minority, that speaks Sundanese.

Bahasa Indonesia which is the official language of all Indonesia is practically a polished and standardised Malay.

7. African-Negro Group

This group may be divided into three major divisions, Sudanese, Guinean, Bantu and Hottentot Bushman. Each of these divisions has a number of subdivisions, some of them, like *Ruanda, Fula, Yoruba, Luba, Mandingo, Ibo, Somali, Galla, Zulu* and *Fanti* numbering from 1 to 6 million speakers. The two great African languages that serve as media of common intercourse for extensive areas are the *Hausa* of Nigeria and the *Swahili* of East Africa.

The total number of speakers of African-Negro languages is placed at approximately 160 million. Hausa of Nigeria has an estimated 13 million speakers, while Swahili of East Africa commands over 10 million. One or both of these languages promise to become the lingua franca of Africa. But parochial jealousies are likely to relegate these two leading languages to a secondary status.

8. American-Indian Group

This group is a confusing array of many tongues, of whose origin we know practically nothing. At present we have at least 100 seemingly different linguistic stocks, each divided into separate languages or dialects among the Indians of north, central and south America. *American Indian* or *Amerindian* appears to be related to a number of other language families like the Ural Altaic, Sino-Tibetan and Polynesian families and even the little known Austric family, but its original stock is unknown. The *Aztec* tongue, the most celebrated among Amerindian languages is still a live language, with something like a million speakers in northern and central Mexico. The *Mayas* of Guatemala and Yucaton, the *Quechua* which extends from Ecuador across Peru and Bolivia to northern Argentina and *Tupi Guaranj* of Paraguay are some of the ancient Indian tongues that are very much alive even today, The languages of the *Eskimos* and *Aleuts* show very close resemblance to Amerindian and may be regarded as branches of the American Indian family.

9. Caucasian Group

This is a family of languages round about Caucasus (Soviet Union) and covers some 5 million speakers. The most ancient of these languages which serves today in this region is *Georgian*, which appears in recorded from in the 5th century A D. Other surviving branches of this family are *Lesghian, Avar* and *Circuosian.* In ancient times, there were as many as seventy languages in the Caucasian area, so much so. that the Arabs called the Caucasus, "the mountain of many tongues".

10. Miscellaneous

Among the lesser familes, the *Austric family* apparently commanded a wide circulation in very ancient times. It is at present represented by tribal tongues like the *Munda* group in India. The aboriginal languages of Australia. Tasmania and New Guinea apparently belong to this group.

---

* The common suffix 'nesian' is Greek and means 'pertaining to islands'. Thus Micronesia is 'small islands', Melanesia 'black islands' and Polynesia 'many islands'.

Basque, which is spoken on both sides of the Pyrenees in Europe. appears to be a remnant of a language family called Mediterranean. which has long since disappeared. The present speakers of Basque number nearly a million.

The *Ainu* of the white skinned people of Hokkondo, the northernmost of Japanese islands, the *Hyperborean* tongues of Siberia and Kamchatka and many other minor groups too numerous to mention make up the rest of the world's languages.

Great Modern Languages

Of the great modern languages 13 are spoken by 50 million or more people, They are Chinese, English, Hindustani*, Russian, Spanish, German, Japanese, Arabic, Bengali*, Portuguese, Malay (Indonesian), French, and Italian. Approximate estimates of speakers of different languages made by various authorities differ greatly, sometimes by millions. This is so, because the speakers of different languages are spread over the whole globe and no statistics beyond so called guestimates are available about them.

Chinese, the first language in point of speakers is mainly confined to China and Manchuria. *Japanese* is first and foremost the native tongue of the people in Japanese islands, but it enjoys some currency in Korea and the nearby area of Asiatic mainland. *Malay* is spoken in Indonesia and Malaysia and is understood as far as the Philippines. *Arabic* covers an incredibly huge area from Africa right across Asia and is learned wherever Islam predominates, though it is almost everywhere mingled with other languages of non-Arabic stock like Berber, Cushite and Hebrew.

English covers nearly one fifth of the Earth's surface. It is spoken by 200 million people in the western hemisphere, over 60 million in Europe, some 25 million in Asia, about 5 million in Africa and more than 13 million in Oceania, including. Australia and New Zealand. *Russian* dominates one-sixth of the total area of the Earth, being the national language throughout the Soviet Union. But Russian is used as a native tongue only by half the population or Soviet Russia. The rest speak some 145 different languages. *Spanish* appears in its homeland Spain and the Spanish colonics. But these account for only a quarter of the Spanish speaking population. The rest (three-fourth) are in the western hemisphere, covering Mexico, Central America, Cuba, Puerto Rico, the Dominican Republic, all South American countries barring Brazil and the Guineas. *Portuguese* is spoken in Portugal and the Portuguese colonies. But the greatest number of Portuguese speakers are concentrated in Brazil.

German is practically confined to Europe where it is spoken in Germany, Austria, and most of Switzerland. But it enjoys wide currency as a scholastic language all over Europe, especially in Czechoslovakia, Poland, the Netherlands, Hungary, Yugoslavia, Sweden, and Norway, where it is spoken by an estimated 20 million people. *French* is the language of France, part of Switzerland, Belgium, French possessions or Departments overseas and Canada (especially the province of Quebec). It is reputed as a language of culture in Europe, and is spoken by some 5 million non-Frenchmen, in addition to their mother tongues. *Italian*, the language of Italy, is current in the former Italian colonies, Eritrea, Somaliland, Libya and Cyrenica and is used by Italian emigrant groups numbering some 10 million, living in various Mediterranean countries, and USA, Argentina, Brazil, Uruguay and Chile.

Table 30

Major World Languages

Language	*Speakers (in millions)*	*Chief areas*
Chinese*	700	China
English	300	USA., UK, Canada, Ireland, Australia, New Zealand
Russian	200	USSR
Spanish	165	Spain, Latin America
Hindi	165	India
Japanese	100	Japan
German	100	Germany, Austria, Switzerland
Bengali	95	Bangladesh, India
Portuguese	90	Portugal, Brazil
Arabic	90	Middle East, N. Africa
French	75	France, Belgium, Switzerland, Canada, Haiti, W. Africa
Italian	55	Italy
Indonesian	50	Indonesia
Telugu	43	India (AP)
Javanese	45	Indonesia (Java)

* Including (Mandarin-560; Cantonese 45, Wu-40, Min-85, Hokka-20).

---

* See India

Tamil	42	India (Tamil Nadu), Sri Lanka
Urdu	40	Pakistan, India
Punjabi	40	India (Punjab), Pakistan
Marathi	40	India(Maharashtra)
Bihari	40	India (Bihar)
Korean	40	Korea
Ukrainian	37	USSR (Ukraine)
Vietnamese	35	Vietnam
Polish	32	Poland
Turkish	30	Turkey
Gujarati	26	India (Gujarat)
Thai	25	Thailand
Persian	20	Iran, Afghanistan
Kanarese	27	India (Mysore)
Burmese	20	Burma
Rumanian	18	Romania
Oriya	18	India (Orissa)
Malayalam	21	India (Kerala)
Serbo Croatian	15	Yugoslavia
Rajasthani	15	India (Rajasthan
Hausa	15	Nigeria, Niger
Pashto	14	Afghanistan, Pakistan
Sundanese	13	Indonesia (Java)
Hungarian	12	Hungary
Dutch	12	Netherlands
Swahili	12	E. Africa
Visayan	12	Philippines
Nepali	10	Nepal
Czech	9	Czechoslovokia
Swedish	8	Sweden
Greek	10	Greece
Bulgarian	8	Bulgaria
Belorussian	8	USSR (Belorussia)
Sinhalese	8	Sri Lanka
Assamese	14	India (Assam)
Amharic	8	Ethiopia
Yoruba	8	Nigeria
Madurese	8	Indonesia (Java, Madura)
Ibo	8	Nigeria (Biafra)
Azerbaijani	7	USSR (Azerbaijan), Iran
Sindhi	7	Pakistan
Catalan	6	Spain
Fulani	6	W. Africa
Malagasy	6	Malagasy Rep.
Uzbek	6	USSR (Uzbekistan)
Malay	6	Malaysia, Singapore
Chuang	6	China
Tagalog	6	Philippines
Quechua	6	Peru, Bolivia
Danish	5	Denmark
Flemish	5	Belgium
Provencal	5	France
Tartar	5	USSR (Tartar ASSR)
Kurdish	5	Turkey, Iraq, Iran, Syria, USSR
Khmer	5	Cambodia
Ruanda	5	Rwanda, Congo
Galla	5	Ethiopia
Norwegian	4	Norway
Finnish	4	Finland
Yiddish	4	USA, Israel
Slovak	4	Czechoslovakia
Armenian	4	USSR (Armenia)
Kazakh	4	USSR (Kazakhstan)
Tibetan	4	Tibet
Uighur	4	China (Sinkiang) USSR
Twi	4	Ghana
Malinke	4	W. Africa
Sotho	4	S. Africa, Lesotho
Zulu	4	S. Africa
Xhosa	4	S. Africa
Lithuanian	3	USSR (Lithuania)
Georgian	3	USSR (Georgia)
Hebrew	3	Israel
Kashmiri	3	Kashmir
Santali	3	Eastern India
Yi (Lolo)	3	China
Minangkabau	3	Indonesia (Sumatra)
Ilocano	3	Philippines (Luzon)
Somali	3	Somalia
Mossi	3	Upper Volta
Albanian	2.5	Albania
Mongolian	2.5	Mongolia, China
Miao	2.5	China
Buginese	2.5	Indonesia (Celebes)
Moldavian	2	USSR (Moldavia)
Bhili	2	India (Tribal)
Lao	2	Laos
Achinese	2	Indonesia (Sumatra)
Balinese	2	Indonesia (Bali)
Bikol	2	Philippines (Luzon)
Ganda	2	Uganda
Nyanja	2	Zambia, Malawi
Mbundu	2	Angola
Makua	2	Mozambique
Afrikaans	2	S. Africa
Mayan	2	Guatemala Mexico
Guarani	2	Paraguay
Latvian	1.5	USSR (Latvia)
Slovenian	1.5	Yugoslavia (Slovenia)
Mordvin	1.5	USSR (Mordavian ASSR)
Chuvash	1.5	USSR (Chuvash ASSR)

Tadzhik	1.5	USSR (Tadzhikistan)
Gondi	1.5	East India (Tribal)
Shan	1.5	Burma
Karen	1.5	Burma
Batak	1.5	Indonesia (Sumatra)
Sidamo	1.5	Ethiopia
Kikuyu	1.5	Kenya
Kongo	1.5	Congo
Luba	1.5	Congo
Bemba	1.5	Zambia
Welsh	1	Wales
Breton	1	France (Brittany)
Macedonian	1	Yugoslavia (Macedonia)
Estonian	1	USSR (Estonia)
Bashkir	1	USSR (Bashkir ASSR)
Turkmen	1	USSR (Turkmen SSR)
Kirgiz	1	USSR (Kirgiz SSR)
Baluchi	1	W. Pakistan, Iran
Dayak	1	Indonesia (Borneo)
Tulu	1	India (Mysore)
Wolof	1	Senegal
Mende	1	Sierra Leone
Ewe	1	Ghana, Togo
Fon	1	Dahomey
Kanuri	1	W. Africa
Fang	1	Cameroon, Gabon
Dinka	1	Sudan
Lingla	1	Congo
Mangbetu	1	Congo
Rundi	1	Burundi, Congo
Kamba	1	Kenya
Luo	1	Kenya
Sukuma	1	Tanzania
Tigrinya	1	Ethiopia
Shona	1	Rhodesia
Tswana	1	S. Africa, Botswana

MINERAL WEALTH

The Importance of Minerals

Minerals are inorganic substances which contain one or more elements. Rocks consist of minerals. Both rocks and minerals are derived from the crust of the earth.

Minerals have played a leading role in the evolution of civilization. Long before man discovered (or invented?) agriculture, he had discovered minerals. They lay handy all around him-pebbles and pieces of rock. For centuries, these had been his mainstay. Our stone age ancestors were so called, because they carved their tools out of stone. This was the first mineral that man had put to use

Then came other discoveries, metals like copper and iron. These have been so important to civilization that we have named epochs of history by them—Copper age, Bronze age, Iron age, etc. The process of discovery went on with accelerated momentum-new minerals, new alloys and new uses. Today we have about 2,000 different varieties of minerals—metals and non-metals—and a host of alloys.

Classification of Minerals

Minerals may be classified as Metal, Non-metal and Fuel minerals.

Metals. Among metals, the most important are aluminium, antimony, copper, gold, iron and steel, magnesium, manganese, mercury, nickel, platinum, silver, tin, titanium, tungsten, uranium and zinc.

Non-metals. Important non metals are asbestos, corundum, china clay, diamond, felspar, fluorspar, graphite, gypsum, magnesite, mica, phosphate, rock salt, sulphur and soapstone.

Leading Producers of Metals

Aluminium	USA, USSR, Canada, Japan, Norway.
Copper	USA, USSR, Zambia, Chile, Canada, Japan, Australia.
Gold	South Africa, Canada, USA, Ghana.
Iron Ore	USSR, USA, France, Australia, Canada.
Lead	USA, Australia, USSR, Canada, Mexico.
Manganese Ore	USSR, South Africa, Brazil, India, Gabon.
Steel	USA, USSR, Japan, West Germany, UK.
Tin	Malaysia, Bolivia, USSR, Thailand, China.
Zinc	Canada, USSR, Australia, USA, Peru.

Gemstones, though coming under the broad classification, non-metals, deserve, to be classed separately.

Fuels. The main fuels are coal, natural gas and petroleum.

MAJOR MINERALS

i) Metals & Non Metals

Aluminium, the third most extensively consumed metal is the most plentiful of all metals. It comprises 8.1 per cent of the earth's crust as against 5 per cent represented by iron. The major ore of aluminium is bauxite. But aluminium is present in different forms in all alumina minerals.

Though commercial production of aluminium started only in the present century, it is fast displacing other metals in various manufactures like shutters, sidings and utensils. It is very light and has high conductivity and is, therefore in great demand in aircraft production and electrical industries.

Antimony– a metal, used in printing types and in medicines and pigments.

Apatite a phosphatic compound used in fertilisers, matches and chemicals.

Asbestos–sometimes known as 'rock cotton' is a group of minerals that can be spun into fibres They are fire resistant and are used in roofing, piping and other fittings.

Barytes,–also known as 'heavy spar' is a sulphate of barium and is used in smelting iron and manganese and for all barium chemicals.

Bauxite, the chief ore of aluminium, is used in refractory and chemical industries.

Betnonite, possesses decolouring and purifying properties and is mainly used as a purifier and filler.

Beryllium, derived from beryl, is rare and costly. It is light and can withstand high temperatures. It is used as an alloy with copper and in X-ray tubes.

Borax in the form of boric acid and borates are used for vitreous enamels, ceramic glaze, in brazing and welding and in medicines and cosmetics.

Cadmium a scarce metal, is used in electroplating, glass, paints and in storage batteries.

Calcite also known as 'Calcspar' is a naturally occurring carbonate of calcium and is used in textiles, paints, ceramics, bleaching powder etc.

China clay or Kaolin is used in industries like ceramics, refractories, textiles, paper, pesticides and others.

Cobalt, imparts magnetic properties and is used as alloys with other metals.

Copper, the oldest metal discovered by man is extensively used for various purposes and comes next to steel in annual consumption. Some 240 mineral ores contain copper in varying percentages, but the best known ores are Chalcopyrite, Azurite and Malachite. Malachite is an ornamental stone as well.

The high electrical and thermal conductivity of copper makes it indispensable to the electrical industry, which consumes about 50 per cent of the total production. Its malleability and corrosion-resistance makes it an ideal alloy with other metals. *Brass* (copper and zinc) and *bronze* (copper and tin) are two of the oldest and commonest alloys of copper.

Cryolite is mainly used in the extraction of aluminium from ore and also in ceramics and glass industries.

Dolomite is a double carbonate of calcium and magnesium and is mainly used in iron and steel, refractory and glass industries.

Felspar is used in the manufacture of earthern ware, sanitary ware, enamelled bricks, opalescent glass, etc.

Fireclay is a refractory clay of sedimentary or residual origin. Fireclay is mainly used in the manufacture of refractory bricks for high temperature furnaces.

Flourspar or fluorite is used in enamelling iron, for finishing enamel-ware like bath-tubs, as a fluxing material in the manufacture of steel, etc.

Fuller's earth, so called because it was formerly used for 'fulling', i. e, cleaning wollen fabrics and cloth, is a natural bleaching clay. It is used in refining petroleum, vegetable oil and in the preparation of cosmetics.

Gold, the king of minerals, is used in jewellery, as currency reserve and for industrial purposes. Pure gold being too soft is often alloyed with copper, silver nickel or palladium.

Graphite, also known as plumbago or, black lead, is a variety of naturally occurring carbon. It is opaque, extremely resistant to the action of acid and a good conductor of both heat and electricity. It is used in the manufacture of crucibles, in paints and pigments, in foundry facings and for pencil manufacture.

Ilmenite is one of the commercial sources from which the rare metal titanium is derived. It carries about 30 per cent titanium. Ilmenite is used in the production of white pigment, titanium metal and ferro-titanium

Iron and Steel. Iron is the most extensively consumed metal to day. Its natural supply is also abundant. It accounts for some 5 per cent of the earth's crust. Pure iron is too soft for use. So, it is hardened by the addition of carbon to form steel and cast-iron. A number of minor metals are used as alloys of steel so as to endow it with additional physical properties. The most common among them are: Chromium, Cobalt, Manganese, Molybdenum, Nickel, Silicon, Tungsten and Vanadium. These in different combinations and proportions enable steel to perform very different functions. *Cobalt* (35%) makes strongly magnetic steel. *Manganese* (1.75%) makes hard steel for wood-cutting tools, auto-axles and agricultural machinery. *Molybdenum* (0.68%) makes steel heat-resistant for boiler and steam equipment. *Nickel* (3.5%) makes tough steel used in all hammer parts and crankshaft. *Vanadium* (0.18%) renders steel highly resistant to impacts and is used in the manufacture of locomotive parts. *Chromium* (18%) and *nickel* (8%) produces non corrosive 'Stainless Steel. *Silicon* (2%) and Manganese (0.75%) endow steel with springiness-in springs for autos and railway carriages. *Tungsten* (18%). *Chromium* (4%) and *Vanadium* (1%) produce what is called 'high speed steel' for high speed cutting tools.

Kyamite is an aluminium silicate and is an important refractory mineral.

Lead is recovered from the natural ore galena and is an excellent sound and vibration absorbent Lead has wide-ranging industrial applications. It is used as an alloy with other metals, principally antimony and tin. It is used in brasses and bronzes, type-metal, die-casting, water pipes and in the manufacture of pigments.

Magnesium, one of the lightest metals known, is mostly used as an alloy of steel and aluminium. It is specially used in photography, machine tools, conveyor belts, flash bulbs and for flares.

Mercury is one of the heaviest metals and is unique in its being the only metal in liquid form. Mercury is derived from the mineral cinnabar, which is a sulphide of mercury. Mercury has diverse uses in industry. It is used in explosives, pigments, paints, printing inks, medicines dye-stuffs and in other chemicals.

Mica. Two varieties of mica find use in electrical and electronic industries.

Monazite is a phosphate of the rare earths, a portmanteau compound carrying some 15 rare earth minerals. The strategic metals derived from the monazite sands are titanium, uranium, thorium and zirconium.

Molybdenum, a hard metal with a high melting point is mainly used as an alloy with iron and steel. It is a good electrical and thermal conductor and a corrosion-resistant.

Nickel is essential in the production of stainless steel. It has a very high corrosion resistance and finds application in electroplating, chemical and ceramic industries.

Ochre is a group of natural pigments and occurs in various shades, chiefly yellow red, green and brown. It is used in colour washes, distempers, oil paints and coloured papers.

Pentlandite, a nickel-iron sulphide is used in steels and alloys.

Platinum perhaps the costliest metal is usually found in the natural state with a number of other allied metals—palladium, iridium, osmium, rhodium and ruthenium. Hardened with iridium or ruthenium, platinum is used in jewellery, laboratory equipment, dentistry, electrical industry, etc.

Quartz or Silica is the most common mineral on the earth's crust. It is chiefly used in glass manufacture and in making refractory bricks for glass furnaces and coke ovens.

Rutile. Rutile like ilmenite is a source of titanium. Rutile contains nearly 60 per cent titanium. Rutile is maintly used in the production of arc-welding electrodes.

Salt, either in the form of sodium chloride (common salt) or along with carbonates of calcium and magnesium and their sulphates occurs in sea water, in brine springs, wells and salt lakes and in rocksalt deposits. Salt, apart from its use in culinary preparations finds extensive use in chemical industries.

Saltpetre or Potassium nitrate is chiefly used in the manufacture of explosives.

Silver is used in coinage, plate and jewellery and in various industries—photographic, chemical and electrical.

Sillimanite like Kyanite is a refractory mineral used in glass, ceramic, cement, chemical industries etc.

Steatite or soapstone or talc is a hydrous silicate of magnesium. Massive steatite is cut into panels and used for switch-boards, acid-proof table-tops, laboratory, laundry and kitchen sinks, as well as for linings for furnaces and stoves. Talc powder is extensively used in paint industry, manufacture of porcelain, asbestos products, textiles, polishes and soaps. The purest white kind, known as French chalk is used in cosmetics and toilet preparations.

Sulphur or Brimstone is a major constituent in many industrial processes—in the manufacture of sulphuric acid, paper, insecticides and in the vulcanization of rubber.

Tantalum has the strength of steel and is the outstanding metal for corrosion resistance It is used in precision equipments and surgical instruments.

Tin is often confused with iron in popular nomenclature like 'tincan'. Actually tin is only the bright polishing on iron containers. It is extracted from the mineral ore cassiterate and is used in tin-plating, solders, bronzes, pewter and silk stockings.

Titanium, a silvery white metal occuring naturally in the form of ilmenite is comparatively light. It is now extensively used in aircraft construction. Titanium and its alloys have a high degree of corrosion-resistance. But being a costly metal it is not used in cheap manufactures where it is eminently suitable.

Topaz is a silicate of flourine and aluminium. It is popular as a gem-stone and is used in refractories.

Tungesten, one of the hardest metals known, has the highest melting point of all metals (3410°c). It is twice as heavy as iron or steel, has better electrical conductivity than steel and is also a good thermal conductor. It is familiar to all as the incandescent wire in our electric bulbs. It is used in X-ray tubes, photograph needles and others.

Uranium, basic to atomic research is not found in the free state but occurs in over 100 minerals. Pitchblende containing uranium oxides and Torbernite (hydrated copper uranium phosphate) are rich sources of uranium.

Vanadium (See Steel alloys)

Zinc is derived from the natural ore sphalerite which frequently occurs with galena the chief ore of lead. Zinc is used in castings, galvanising iron, in brasses and as oxide in paints, ceramics, rubber and cosmetics.

Zircon, a silicate, is a precious stone As oxide, it is used in refractories and ceramics. Zirconium metal is used in steel alloys and wireless valves.

Fuel Minerals

Coal is not an inorganic substance, and therefore strictly not a mineral. It is classified as a mineral, because of its mode of occurrence and the geological process involved in its formation, which is very much like that of minerals. This is true of oil and natural gas too.

Coal is derived from vegetable matter. When trees and other vegetation fall into swamps, and are covered over with soil, they undergo partial decomposition and become *peat*. In peat, the original woody material is generally visible. As more and more peat accumulates, bacteria break up the organic compounds present in it, liberate gases and convert it into *lignite* (brown coal). As more and more gaseous constituents are eliminated, by pressure of sediments deposited on the coal bed, or by pressure from earth movements, the lignite is converted into various grades of coal.

Coal like oil is essentially a fuel mineral, but has many by-products, like pitch, coalgas, tar and coke, which provide materials for a whole set of new products.

Oil (Petroleum). Oil and natural gas are very often found together. They are like coal, derived from the decomposition of small marine plants and animals. Bacteria have played an important role in their formation. Natural crude oil, when refined by distillation yields several varieties of oil, petrol, kerosene, lubricating oil, paraffin wax, asphalt, etc. These products are useful in synthesising a number of organic chemicals like dyes, plastics, artificial rubber, fertilisers etc. This has opened up a vast new avenue of industrial products, generally referred to as petro-chemicals.

Table 31

Leading Producers of Oil

(1000 barrels)

USA	3,517,450
Venezuela	1,353,420
USSR	2,594,550
Morocco	1,209,314
Iran	1,397,460
Kuwait	1,090,040
Saudi Arabia	1,387,266

Table 31

Estimated World Production of Selected Minerals

Aluminium	8.7	m m t*
Antimony	65,367	m t **
Asbestos	3.5	m m t
Cement	571,373,936	m t
Chromium	5,921,100	m t
Cobalt	23,610	m t
Copper	12	m m t
Diamonds	42.4	million carats
Gold	47.4	million troy-ounces
Iron	1,201.1	m mt
Steel	593.7	m mt
Lead	6 7	m m t
Manganese	18·5	m m t
Mercury	285,000	flasks
Molybdenum	82,695	m t
Nickel	620,000	m t
Phosphate	85.1	m m t
Platinum	4.2	million tory-ounces
Potash	18.5	m m t
Silver	304 5	million tory-ounces
Sulphur	22.1	m m t
Tin	448,000	long tons
Titanium (Ilmenite,Rutile)	3,990,000	m t
Tungsten	1·2	m m t
Uranium Oxide	21,770	m t
Zinc	6.6	m m t

*m m t =million metric tons.
**mt = metric tons.

GEMS

Gemstones are minerals that possess attractive colours, sparkle or translucence which appeals to our aesthetic sense. They are highly priced, because they occur only in limited quantities, in nature. They are hard substances, the hardest known substance, diamond, being one of them. They are used in industries for their hardness and in jewellery and fancy-ware for their brightness. Three types of gems, *amber*, *coral* and *pearl* are not minerals in the strict sense, because they are organic substances. But since they share some of the distinguishing properties of precious stones, they are classed as gems. The list below gives the better-known gemstones, with their *names, description, colour, births me* (if any) *and places of occurrence*, in that order.

1 **Agate**— a variety of chalcedony opaque white to pale grey/....../ Brazil, Germany, India, Madagascar.

2 **Amber**—an organic substance / honey yellow, pale yellow or cloudy / ...... / Baltic and Sicily coasts.

3 **Amethyst**—Purple / February / Brazil, Ceylon, Germany, Madagascar, Uruguay, Urals (USSR).

4 **Aquamarine**—a variety of beryllium / sea-green or pale limpid blue / March / Brazil, Collombia, Norway, Urals.

5 **Blood stone** - or **Blood Jaspar**—a variety of chalcedony / dark green with red spots / March - (alternative to aquamarine) / Scattered occurrence.

6 **Cat's eye**—a variety of chrysobery / Yellowish to brownish green / ...... / Scattered.

7 **Chrysoprase** — a chalcedony / apple green / May (alternative to emerald)/ Germany. USA.

8 **Cornelian, also carnelian**-a chalcedony/ Reddish or yellow reddish/ July (alternative to ruby)/Widespread occurrence.

9 **Coral**— an organic substance / a variety of colours / .... / Pacific and Indian oceans,

10 **Diamond**— Bluish white or slightly yellowish white / April / South Africa, India, Brazil, Liberia, Sierra Leone etc.

11 **Emerald**—Grass green / May / Austria Colombia, Norway, Urals.

12 **Garnet**— Black, purplish red or green/ January / Ceylon, India, USA, Urals.

13 **Jade**— dark to light green / ...... / Burma, China, Tibet.

14 **Jasper**— a chalcedony / brown, red or yellow / ...... / Egypt, India.

15 **Bapis Lazuli**— Deep azure blue / September (alternative to sapphire) / Afganistan, Chile, Tibet.

16 **Moonstone**— a form of feldspar / white to bluish, irridescent / June (alternative to pearl) / Brazil, Burma, Ceylon.

17 **Onyx**— an agate / white / ...... / Brazil, Germany, India, Madagascar/ Mexico,

18 **Opal**— many varieties and colours-fire opal, water opal, black opal / October / Australia, Mexico, Hungary.

19 **Pearl**— an organic substance / white / June / Pacific and Indian oceans.

20 **Peridot**— a variety of olivine / green / August / Australia, Brazil, Burma, Norway.

21 **Rock Crystal**— colourless / April (alternative to diamond)/Brazil, Burma, France. Madagascar, Switzerland.

22 **Ruby** - a form of alumina / dark red/ July / Brazil, Burma, Tailand, Ceylon.

23 **Sapphire**-- a form of alumina / dark blue and also other colours / September / Austria, Burma, Ceylon, Kashmir.

24 **Sardonyx**— an agate / reddish brown August (alternative to peridot) / Brazil Germany, India, Madagascar.

25 **Topaz** — tea coloured / November / Australia, Brazil, Ceylon, Germany,

26 **Turquoise**--sky blue / December /Iran. Turkey, Senai, Penisula, USA.

WORLD ORGANISATIONS

UNITED NATIONS ORGANISATION

Headquarters: First Avenue, New York City, NY, USA.

The United Nations Organisation (UNO) is an association of sovereign states, who have bound themselves by a charter to maintain international peace and security, to ensure that armed force shall not be used save in the common interest, and to employ international machinery for the promotion of the economic and social advancement of all peoples.

The Charter of the United Nations was signed by the delegates of 50 nations on 26th June, 1945 at San Francisco. The UNO formally came into existence on 24th Oct., 1945. The first regular session of the General Assembly of UNO held in London in January 1946, decided that the interim headquarters of the organisation should be in New York. In August 1946, an interim headquarters was set up at Lake Success in New York. In December 1946, the UNO secured a permanent site, gifted by John D Rockefeller, in Manhattan, New York. The offices of the UNO were shifted to the new buildings in Manhattan in 1951. The official languages of the UNO are *Chinese, Russian, English, French* and *Spanish*.

Membership of the UNO is open to all peace-loving nations who accept the principles of the United Nations Charter and are willing and able to carry out its obligations. New members are admitted by the General Assembly on the recommendation of the Security Council. Members can be expelled or suspended in the same manner.

A momentous development in the history of the UN is the admission of Communist China as a member on Oct. 25, 1971.

The admission of Red China, implied the expulsion of nationalist China, that is Taiwan. Red China succeeded to the rights and privileges of a permanent member of the Security Council which Nationalist China exercised so far. Nationalist China (or Taiwan), not only lost its permanent seat in the Security Council, but also its primary membership of the UN.

The principal organs of the UN are: General Assembly, Secretariat, Security Council, Trusteeship Council, Economic and Social Council and International Court of Justice.

General Assembly

The General Assembly of the UN is the nearest that the world has yet come to the visionary 'Parliament of Man'. The Assembly consists of the representatives of all the member states. Each state has one vote, but may send 5 representatives. The General Assembly meets at least once in a year. Special sessions may be summoned by the Secretary General, on a request by the Security Council. The Assembly may discuss any matter within the scope of the Charter and make recommendations on all matters that are not concurrently on the agenda of the Security Council. In 1950, it was resolved that if there was no unanimity in the Security Council on any matter, the General Assembly may discuss problems which form a threat to or a breach of peace among member states and recommend to the members such action as the Assembly deems proper.

The General Assembly passes the annual budget of the UN and determines the contribution payable by each member. It receives and considers the reports of the special committees including the Security Council. Important questions are decided by a two-thirds majority and other questions by a simple majority. The General Assembly elects the non-permanent members of the Security Council, the members of the Economic and Social Council and the elected members of the Trusteeship Council. The Judges of the International Court of Justice are elected by the General Assembly, in conjunction with the Security Council. The Secretary General is appointed on the recommendation of the Security Council. The General Assembly elects its own President and Vice-Presidents every year.

The work of the General Assembly is divided amongst 7 main committees on each of which every member state has the right to be represented by one delegate. The committees are: *Political and Security Committee, Economic and Financial Committee, Social, Humanitarian and Cultural Committee, Trusteeship Committe,* *Administrative and Budgetary Committee, Legal Committee, Special Political Committee.*

The work of these committees is co-ordinated by a General Committee, which consists of 25 members comprising the President of the General Assembly, its 17 Vice-Presidents and the Chairmen of the 7 main committees. In addition, the General Assembly has two standing committees, the advisory committe on administrative and budgetary questions, and a committee on contributions. Subsidiary *ad hoc* committees are also created from time to time to deal with specific questions, like the International Law Commission, the Commission for Korea, the Special Committee for Non-self-governing Countries or the Scientific Committee on Atomic Radiation.

Secretariat

The Secretariat is under a Secretary General who is the chief administrative officer of the UN He is assisted by an international staff appointed by him. The Secretary General makes an annual report to the General Assembly and such other reports as may be necessary from time to time. He can also bring to the notice of the Security Council any matter which in his opinion threatens international peace He executes all resolutions passed by the General Assembly and the Security Council and exercises general supervision over the activities of associate agencies.

Secretary General. Dr. Kurt Waldheim of Austria, who was Austria's permanent representative at the UN, was appointed the Secretary General from December 21, 1971. He is the fourth Secretary General and succeeds U Thant of Burma.

The Security Council

The Security Council consists of 15 members; five permanent members, viz, China, France. USSR, UK and USA and ten nonpermanent members elected by the General Assembly by a two-thirds majority. The Council functions continuously· Its presidency is held for one month in rotation by representatives of member states in the English alphabetical order of their names. On all matters, other than procedure, decisions are to be made on the strength of 9 affirmative votes, which should include the concurrent votes of the 5 permanent members. Any permanent member can veto any decision of the Security Council The Council has two standing committees, one of experts, and the other for admission of new members and a permanent Disarmament Commission· In addition, it establishes *ad hoc* committees like the Committee on Laos. On August 31, 1964 the UN Charter was amended (the First Amendment ever made) to enlarge the membership of the Security Council from 11 to 15, the number of votes for a decision being increased from 7 to 9. The ten nonpermanent members of the enlarged Security Council are to be elected on the following basis: 5 members from African and Asian countries, 2 from Latin American countries, 2 from Western European countries and "others" (others mainly imply Commonwealth countries) and 1 from East Europen countries.

Trusteeship Council

The Trusteeship Council looks after the interests of people in areas which are not yet fully self-governing. Such areas may be territories formerly held under the League of Nations mandate or territories taken from enemy states in World War II or territories voluntarily placed under trusteeship by states responsible for their administration. The Council consists of member states administering Trust Territories, the permanent members of the Security Council who do not administer Trust Territories and such number of elected representatives as would equalise the number of members administering Trust Territories The elected members function for a period of three years. Retiring members are eligible for re-election. The Council meets at least once a year. The President is elected for one year and is not immediately eligible for re-election

ECOSOC

The Economic and Social Council (ECOSOC) is responsible under the General Assembly for carrying out the objects of UNO in international ecnomic, social, cultural, health and other allied matters. The Council can act in consort with inter-governmental agencies, international non-governmental organizations and (after consultation with the member state concerned) with national organizations working in these fields. The Council orginally consisted of one delegate each from 18 member states elected by a two-thirds majority of the General Assembly, six members being elected each year for a 3-year term. Retiring members are eligible for re-election· Decisions are made by a majority of members present and voting, every member having one vote. Under an amendment to the UN Charter, which came into effect on August 31, 1964, the membership of the Council was raised from 18 to 27. Of the 9 new seats, 7 should go to African and Asian countries, one to Latin America and one to Western Europe and "others"*. The Council elects member states to the following commissions which function under it:

1. Transport and Communications Commission (15 members).
2. Statistical Commission (15 members)
3. Social Commission (15 members).
4. Population Commission (15 members).
5. Commission on Narcotic Drugs (15 members).
6. Commission on Human Rights (18 members).
7. Commission on Status of Women (18 members).
8. International Trade Commodity Commission (18 members).
9. Economic Commission for Europe (E C E—30 states)
10. Economic Commission for Asia and the Far East, (ECAFE—24 states).
11. Economic Commission for Latin America (ECLA—24 states).
12. Economic Commission for Africa (ECA—24 states)

Representatives on these Commissions, except the Commission on Narcotic Drugs, are nominated by the elected states, in consultation with the Secretary General, so as to secure a balanced representation in the various spheres covered by the different commissions. Representatives in the Narcotics Commission are nominated directly by the states elected to that Commission. All these nominations are to be ratified by the Council.

International Court of Justice

The International Court of Justice was created by an international treaty, the Statute of the Court, which forms part of the UN Charter. The Court has fifteen judges, no two of whom may be nationals of the same states. The judges are elected by the General Assembly and the Security Council sitting independently. Their term of office is 9 years, but they are eligible for re-election. The Court elects its own President and Vice-Presidents for a term of 3 years. The full Court of Judges usually sits but a quorum of 9 judges is sufficient to constitute the Court. The Court exercises jurisdiction in all matters referred to it by member states The official languages of the Court are English and French. All questions are decided by a majority of judges present. If there is no judge on the bench, belonging to the nationality of the parties to the dispute, each party has the right to choose a judge, who shall sit with the other judges The official seat of the Court is at The Hague, but it may sit elsewhere whenever it considers this desirable.

The United Nations Organisation has now a membership of 138 The list of members as on October 1, 1974 is given below.

Members

Country	*Percentage to UN budget*	*Date of admission*		
Afghanistan	0.04	1946	Nov.	19
Albania	0.04	1955	Dec.	14
Algeria	0.10	1962	Oct.	8
Arab Emirates	...	1971	Dec.	9
Argentina†	0 93	1945	Oct.	24
Australia†	1.52	1945	Nov.	1
Austria	0.57	1955	Dec.	14
Bahamas	...	1973	Sep.	18
Bangladesh	...	1974	Sep.	18
Bahrein	...	1971	Sep.	22
Barbados	0.04	1966	Dec.	9
Belgium†	1.10	1945	Dec.	27
Bhutan	...	1971	Sep.	22
Bolivia†	0.04	1945	Nov.	14
Botswana	0 04	1966	Oct.	17
Brazil†	0 89	1945	Oct.	24
Britain†	6.62	1945	Oct.	24
Bulgaria	0.18	1955	Dec.	14
Burma	0.06	1948	Apr.	19
Burundi	0.04	1962	Sep.	18
Byelorussia†	0.51	1945	Oct.	24
Cambodia	0 04	1955	Dec.	14
Cameroon	0 04	1960	Sept.	20
Canada†	3.02	1945	Nov.	9
Cent. African Rep.	0 04	1960	Sep.	20
Ceylon (Sri Lanka)	0.06	1955	Dec.	14
Chad	0 04	1960	Sep.	20
Chile†	0.23	1945	Oct.	24
China (Nationalist†)	4 00	1945	Oct.	24
Colombia†	0.20	1945	Nov.	5
Congo (Kinshasa)	0.05	1960	Sep.	20
Congo (Brazzaville)	0.04	1960	Sep.	20
Costa Rica†	0 04	1945	Nov.	2
Cuba†	0.19	1945	Oct.	24
Cyprus	0.04	1960	Sep.	20
Czechoslovakia†	0.92	1945	Oct.	24
Dahomey	0.04	1960	Sep.	20
Denmark†	0.62	1945	Oct.	24
Dominican Rep.†	0.04	1945	Oct.	24
Ecuador†	0 04	1945	Oct.	24
El Salvador†	0.04	1945	Oct.	24
Equatorial Guinea	...	1968	Nov.	12
Ethiopia†	0.04	1945	Nov.	13
Fiji	...	1970	Oct.	13
Finland	0.49	1955	Dec.	14
France†	6 00	1945	Oct.	24
Gabon	0.04	1960	Sep.	20

See *Security Council*, page. 212

Gambia	0.04	1965 Sep. 21
Germany (East)		1973 Sep. 18
Germany (West)		1973 Sep. 18
Ghana	0.08	1957 Mar. 8
Greece	0.29	1945 Oct. 24
Grenada		1974 Sep 18
Guinea Bissau		1974 Sep. 18
Guatemala†	0.05	1945 Nov. 21
Guinea	0.04	1958 Dec. 12
Guyana	0.04	1966 Sep. 20
Haiti†	0.04	1945 Oct. 24
Honduras†	0.04	1945 Dec. 17
Hungary	0.52	1955 Dec 14
Iceland	0.04	1946 Nov. 19
India†	1.74	1945 Oct 30
Indonesia	0.34	1950 Sep 28
Iran†	0.22	1945 Oct. 24
Iraq†	0.07	1945 Dec 21
Ireland	0.17	1955 Dec. 14
Israel	0.20	1949 May 11
Italy	3.24	1955 Dec. 14
Ivory Coast	0.04	1960 Sep. 20
Jamaica	0.05	1962 Sep. 18
Japan	3.78	1956 Dec. 18
Jordan	0.04	1955 Dec 14
Kenya	0.04	1963 Dec 16
Kuwait	0.07	1963 May 14
Laos	0.04	1955 Dec. 14
Lebanon†	0.05	1945 Oct. 24
Lesotho	0.04	1966 Oct. 17
Liberia†	0.04	1945 Nov 2
Libya	0.04	1955 Dec 14
Luxembourg†	0.05	1945 Oct 24
Malagasy Rep.	0.04	1960 Sep. 20
Malawi	0.04	1964 Dec 1
Malaysia**	0.11	1657 Sep. 17
Maldive Islands	0.04	1965 Sep. 21
Mali	0.04	1960 Sep. 28
Malta	0.04	1964 Dec 1
Mauritania	0.04	1961 Oct. 27
Mauritius	...	1968 Apr. 24
Mexico	0.87	1945 Nov. 7
Morocco	0.10	1956 Nov. 12
Nepal	0.04	1955 Dec. 14
Netherlands†	1.16	1945 Dec. 10
New Zealand†	0.36	1945 Oct. 24

Nicaragua†	0.04	1945 Oct. 24
Niger	0.04	1960 Sep. 20
Nigeria	0.14	1960 Oct. 7
Norway†	0.43	1945 Nov. 25
Oman	...	1971 Oct. 7
Outer Mongolia	0.04	1961 Oct. 27
Pakistan	0.37	1947 Sep. 30
Panama†	0.04	1945 Nov. 13
Paraguay†	0.04	1945 Oct. 24
Peru†	0.10	1945 Oct. 31
Philippines†	0.34	1945 Oct. 24
Poland†	1.47	1945 Oct. 24
Portugal	0.16	1955 Dec. 24
Qatar	...	1971 Sep. 22
Rumania	0.36	1955 Dec. 14
Rwanda	0.04	1962 Sep 18
Saudi Arabia†	0.05	1945 Oct. 24
Senegal	0.04	1960 Sep. 28
Sierra Leone	0.04	1961 Sep. 27
Singapore	0.05	1965 Sep. 21
Somalia	0.04	1960 Sep. 20
S Africa†	0.52	1945 Nov. 7
S Yemen	...	1967 Dec. 14
Spain	0.92	1955 Dec. 14
Sudan	0.05	1956 Nov. 12
Swaziland	...	1968 Sep. 24
Sweden	1.25	1946 Nov. 19
Syria*†	0.04	1945 Oct. 24
Tanzania†††	0.04	1964 May 13
Thailand	0.13	1946 Dec: 14
Togo	0.04	1960 Sep. 20
Trinidad & Tobago	0.04	1962 Sep. 18
Tunisia	0.04	1956 Nov. 12
Turkey†	0.35	1945 Oct 24
Uganda	0.04	1962 Oct. 25
Ukraine†	1.93	1945 Oct. 24
Egypt	0.20	1958 Feb. 24
USA†	31.57	1945 Oct 24
USSR†	14.61	1945 Oct. 24
Upper Volta	0.04	1960 Sep. 20
Uruguay†	0.09	1945 Dec. 18
Venezuela†	0.45	1945 Nov. 15
Yemen	0.04	1947 Sep. 30
Yugoslavia†	0.40	1945 Oct. 24
Zambia	0.04	1964 Dec. 1

† Original Signatories to the Charter.

** On Sep. 16, 1963, three Birtish territories-the former self-governing state of Singapore and the British Crown colonies of British North Borneo (Sabah) and Sarawak-joined with the Federation of Malaya, a UN member since Sep. 17, 1957, to from the new Federation of Malaysia. On Aug. 9, 1965 Singapore withdrew from the Federation of Malaysia and became an independent State.

*† Syria was represented in the UN by the United Arab Republic from Feb. 24, 1958 to Oct, 13, 1961.

††† Tanganyika became a member of the UN on Dec. 14, 1961; Zanzibar became a member on Dec, 16, 1963. On April 27, 1964, the United Republic of Tanganyika and Zanzibar was formed and on May 13, 1964 the new union gave formal notification to the UN Secretariat of its status as a single government. On Oct. 29, 1964, the United Republi changed its name to Tanzania.

Note: Both Egypt and Syria were admitted to the UN on Oct, 24, 1945. They gave up separate membership after the formation of the United Arab Republic. Syria was readmitted on Oct. 13, 1961, after its separation from the UAR.

From Oct. 25, 1971 China is represented by People's Republic of China.

AUXILIARY AGENCIES

IAEA The International Atomic Energy Agency was organised in 1957. It is administered by a board of 25 governors with a Director-General. Its main object is to use atomic energy for peaceful purposes. *Members: 101. Headquarters:* Vienna, Austria.

ILO The International Labour Organisation came into existence as a subsidiary of the League of Nations in 1919. It is composed of the representatives of governments, employers and workers. Its objects are to improve labour conditions, to raise living standards, and generally to promote economics and social stability in all member states The UN recognised it as one of its associate agencies in 1946. The ILO is administered by an International Labour Conference which meets annually, a Governing Body and the International Labour Office The Governing Body consists of 48 members, of whom 24 are government representatives, 12 representatives of employers and 12 of workers. They are elected for a term of three years by their respective representatives in the conference. Ten governments, *viz* Canada, China, France, West Germany, India, Italy, Japan, USSR, UK, and USA have permanent seats on the Board. The others are elected *Members:* 123 *Headquarters:* Lausanne, Geneva, Switzerland.

FAO The Food and Agricultural Organisation came into being in 1945. It is administered by a General Conference of one representative from each member state, a Council of 27 elected by the Conference and a Director General. Its main functions are to review food and agricultural conditions the world over, to improve production, to introduce higher standards of nutrition and standards of living to conserve natural resources, to suggest improvements in land tenure and to provide agricultural credit. *Members:* 111. *Headquarters:* Rome, Italy.

UNESCO The United Nations Educational, Scientific and Cultural Organisation was started in 1945 Its main purpose is to contribute to peace and security by promoting collaboration among nations through education, science and culture The educational programme includes extension and improvement of education and the establishment of training centres for teachers in different countries. In science the organisation promotes the work of international scientific institutions and arranges meetings of international scientists. On the cultural side, the organisation tries to improve the quality of the press, the film and radio services throughout the world. UNESCO is controlled by a General Conference consisting of the representatives of member states, an Executive Board of 24 elected by the Conference, and a Director General. *Members:* 120. *Headquarters:* Paris, France.

UNICEF The United Nations Children's Fund was originally established by the General Assembly of the UN in 1946, to give aid to child victims of war and for improving child health in war-blasted countries. It was an emergency measure and was called the International Children's Emergency Fund; hence UNICEF. In 1950, the programme was extended to children in underdeveloped countries. In 1953, it became a permanent organisation. It has so far helped more than 116 countries in child and maternal care programmes. It functions under an Executive Board of 30 member states, designated by the Economic and Social Council. The resources of UNICEF consist of voluntary contributions, both governmental and private. *Headquarters:* New York (USA).

WHO The World Health Organisation was constituted in 1948 Its object, broadly, is the attainment by all peoples of the world, of the highest possible level of health. Its activities comprise eradication of diseases, prevention of epidemics, improvement of nutrition, dissemination of hygienic habits and other positive measures to ensure healthier living in all countries. The organisation is made up of a World Health Assembly, representing all member states, an Executive Board of 24 elected by the Assembly and a Director General. *Members:* 136. *Headquarters:* Geneva, Switzerland. *Regional Offices:* Brazzaville, Washington, New Delhi, Copenhagen, Alexandria and Manila.

IBRD The International Bank for Reconstruction and Development known shortly as *World Bank*, started functioning in 1946. Its purpose is to encourage international investment for increasing production, raising living standards and securing better balances in international trade. The bank gives loans to member states for specific projects like reconstruction, electric power, transportation, agriculture or communications. *Members:* 105. *Headquarters:* Washington DC., USA.

IFC The International Finance Corporation came into existence on July 24, 1956, as an affiliate of the International Bank for Reconstruction and Deveolpment, Its object is the economic development of less developed states by providing capital for productive enterprises in association with private investors. It is an investing rather than a lending institution. *Members:* 22. *Headquarters:* Washington DC., USA.

IMF The International Monetary Fund known shortly as the Fund was established in 1945. Every country has to become a member of the IMF first, before it can avail itself of the services of the International Bank. Its capital is subscribed by member states in the form of gold and national currencies. The purposes of the Fund are to promote international monetary co-opertion, maintain exchange stability, remove exchange restrictions and facilitate world trade. The Fund co-operates with member government in fixing the exchange values of their currencies in gold or US dollars. Any change by more than 10 per cent is to be approved by the Fund. The work of the Fund is controlled by a Board of Governors, on which all member states are represented The Governors meet once a year to review the Fund's work, to admit new members, to determine the distribution of the net income of the Fund and to discuss other matters of importance in international finance. The Board of Governors elects a Board of executive Directors for a period of two years. The directors administer the Fund. Five of the directors are appointed by the states which have the five largest quotas of subscription to the Fund. The remaining members are elected by the other states. Voting power in both the boards is decided by the amount of subscription paid by the member states concerned. The Managing Director is selected by the Executive Directors for a period of five years but may continue indefinitely at the discretion of the Directors. *Members:* 105 *Headquarters:* Washington DC., USA.

IDA The International Development Association came into existence in Sept. 1960. It is, like the IFC, an affiliate for the International Bank It makes loans on terms more flexible than those for more conventional loans, for important development projects in underdeveloped countries, irrespective of whether the project so assisted is revenue producing or directly productive. Thus IDA may help projects for water supply, sanitation or highways. *Members:* 71. *Headquarters:* Washington D C.

ICAO The International Civil Aviation Organisation was inaugurated in 1947. This organisation superseded two previous international agreements on civil aviation, viz. the Paris Convention of 1919 and the Pan American Convention of 1928. Its purpose is to assist international aviation by providing uniform regulations for operation, simpler procedures at borders, improvements in technical methods and equipment, and better safety for passengers. *Members:* 111. *Headquarters:* Montreal, Canada.

UPU The Universal Postal Union was known as the General Postal Union when it was first formed in 1874. In 1948, UPU became a speciaised agency of the UNO. Its purpose is to facilitate international postal service. The member states of the Union which includes almost all the independent nations and self-governing territories under the UN are united in a single postal territory for exchange of correspondence. The UPU is composed of a Universal Postal Congress which meets every 5 years and an International Bureau which functions as the permanent secretariat. *Members:* 145 *Headquarters:* Berne, Switzerland.

ITU The International Tele-communications Union was formed in 1932 by the merger of the International Telegraph Union, founded in Paris in 1865 and the International Radio-telegraph Union founded in Berlin in 1906. In 1947 a pleni-potentiary conference in Atlantic City, effected radical changes in the organisation and the UN recognised it. as one of its agencies The ITU allocates radio frequencies and registers radio frequency assignments, makes studies and recommendations and collects and publishes information for the benefit of its members *Members:* 129 *Headquarters:* Geneva, Switzerland.

INTELSTAT International Telecommunications Satellite Consortium was founded in 1964 for the establishment of a global commercial communications satellite system. Definite agreements were signed in May 1971. Membership of INTELSTAT is open to all States who are members of the ITU (International Tele communications Union).

WMO The World Meteorological Organisation came into existence in 1951 as a result of the deliberations of the Directors of the International Meteorological Organisation (founded in 1878) who met in Washington in 1947. Its purposes are to facilitate exchange of weather data, to establish a world-wide network of meteorological stations and to encourage research and training in meteorology. It consists of a World

Meteorological Congress, an Executive Committee, a President, two Vice-Presidents and a permanent secretariat. *Members:* 128. *Headquarters:* Geneva, Switzerland

IMCO The Inter-governmental Maritime Consultative Organisation was formed in 1959. It provides a machinery for co-operation between governments in maritime regulations and practices and seeks to abolish discriminatory action by national maritime authorities, and unfair practices by shipping concerns It has an Assembly of all member states, which meets once in 2 years, a Council Composed of 16 members and a Secretariat under a Secretary General *Members:* 63. *Headquarters:* London.

UNHCR The United Nations High Commissioner for Refugees was established by the General Assembly in January 1951. The work of the office of UNHCR is of a humanitarian and non-political nature. The office promotes organises and co-ordinates international action on behalf of those refugees, who require international help. It provides international protection and material assistance, for repatriation, re-settlement or rehabilitation. *Headquarters:* Geneva, Switzerland.

GATT The General Agreement on Tariffs and Trade is an offshoot of a projected scheme for an International Trade Organisation (ITO) sponsored by the UN. The scheme was based on the Havana Charter, drawn up by a preparatory committee of the UN Economic and Social Council in 1947 The Havana Charter was not favourably received by some states of the UN particularly by USA Therefore, the member states of the preparatory committee, 23 in number concluded a general agreement as among themselves at Geneva in 1947. This agreement known as the General Agreement on Tariffs and Trade (GATT) came into force in 1948 On the whole, the GATT now controls more than 80 per cent of the world's trade

The GATT is based on the most favoured nation principle. The GATT members extend to one another special privileges and concessions in trade which they do not accord to other states The main work of GATT is to minimise trade barriers by the progressive reduction of tariffs and other restrictions on trade as among the members Much leeway is however allowed to members who have trade commitments with countries outside the Agreement. In 1955 the GATT countries made a comprehensive review of the working of the Agreement. They drew up a constitution for a permanent organisation known as the Organisation for Trade Co-operation (OTC). The OTC is the executive agency of the GATT. *Members*: 70. *Headquarters* Geneva, Switzerland.

UNCTAD The United Nations Conference on Trade and Development was set up as a subsidiary organ of the UN by a resolution adopted in December, 1964. The principal aim of UNCTAD is to promote internal trade, so as to accelerate the economic growth of under-developed countries and bring them into line with the advanced countries. The Conferenc is convened at intervals of not more than three years. The first session was held in 1964 at Geneva. The second conference took place at New Delhi during March, 1968. The chief executive of the conference is the *Trade and Development Board* which meets at least twice a year· The Board comprises 55 members representing 55 states elected by the conference to the Board.

The third conference was held at Santiago (Chile in 1972, from April 13 to May 19. The conference was attended by 250 delegates from 141 countries, Communist China joining the conference for the first time.

UNCHE United Nations Conference on Human Environment: The first ever international conference on the protection and conservation of the National Environment was held in Stockholm in June, 1972. The conference, sponsored by the United Nations, was attended by some 1,200 delegates from 114 nations. The conference was presided over by the Swedish Minister of Agriculture, Ingemund Bengtsson.

On June 15, the Plenary session of the conference decided to create a permanent machinery to co ordinate national efforts at conservation of environment.

The fund for the conference will be voluntarily provided by the member nations. USA has offered 40 million dollars in five years. Canada is ready to provide 5 to 7.5 million dollars, Japan 10 million dollars and Sweden 5 million dollars. Other nations will join in.

The next conference on Human Environment will be held in 1977.

POLITICAL ORGANISATIONS

Commonwealth of Nations

Headquarters: Downing Street, London

The idea of a (British) Commonwealth of Nations comprising Great Britain, the Dominions and other Territories in the British Empire, was first accepted at the Imperial Conference of 1926. In 1931, the Statute of Westminister recognised the status of the Dominions and defined the relations of the British Crown to the Dominions. The other territories under the Crown were to remain colonies or protectorates, so long as they were not self-governing, but were entitled to become members of the Commonwealth on attaining full self-government. In 1947, the Office of the Secretary of State for Dominions was abolished and the Secretary of Commonwealth Relations assumed charge

Structure. The Commonwealth has no written constitution which regulates its functions. Its members are autonomous communities within the British empire equal in status, in no way subordinate to one another in any aspect of their domestic or foreign affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations.

Each country is free to determine its own constitution. Nevertheless, all countries are agreed in accepting the British Queen as the Head of the Commonwealth Some of the members like Canada, Australia and New Zealand, recognize the Queen as the titular head of their States and have Governors General appointed by the Queen on the recommendation of the State Cabinet. Some like India and Pakistan who have elected Presidents of their own as Heads of State recognise the Queen as the Head of the Commonwealth only. Almost all States in the Commonwealth follow the parliamentary form of democracy, with a cabinet of ministers, elected by, and responsible to the legislature.

Members. Members of the Commonwealth are represented in other Commonwealth countries by diplomatic officers called High Commissioners, in the place of Ambassadors representing non-Commonwealth countries. The prime ministers of the Commonwealth countries meet in Commonwealth conferences when questions relating to the Commonwealth arise. The ministers concerned with particular departments also meet together to discuss problems of mutual interest in their particular spheres. Thus though there is no obligation for the members to consult any other member, every important question of policy is discussed at the Commonwealth conference and approved by it.

Present Members of the Commonwealth*

Great Britain, Australia, Canada, New Zealand, India, Sri Lanka, Malaysia, Singapore, Ghana, Nigeria, Cyprus, Malta, Sierra Leone, Jamaica, Trinidad and Tobago, Uganda, Tanzania, Malawi, Kenya, Zambia, Gambia, Botswana, Lesotho, Guyana, Barbados, Mauritius, Swaziland, Tonga, and Western Samoa.

French Community

The French Community is an organisation like the British Commonwealth. It offers to the French overseas territories which manifest their will to adhere to it, new institutions based on the common idea of liberty, equality and fraternity and conceived with a view to their democratic evolution. This principle was accepted and promulgated by the Constitution of the Fifth (French) Republic which came into force in 1953.

Under the constitution, the territories under French administration are given 3 choices: (1) They may keep their dependent status (2) They may become overseas departments, under a perfect, with an elected council for territory and with the right to send representatives to the National Assembly and the Senate of the French Republic. (3) They may become member states of the Community with full internal autonomy, but their foreign affairs, defence, currency, transport, telecommunications and such other common affairs will be controlled by the Senate, which is the supreme deliberative body of the Community. The senate consists of 284 members' 186 of whom represent the French Republic and the rest the representatives of the overseas legislatures of member states. By an amendment of the Constitution in 1960, member states may become fully independent and sovereign republics without ceasing to belong to the Community. Many African states availed themselves of this opportunity and became sovereign states.

Members. The present members of the Community are: (1) French Republic

---

Pakistan left the Commonwealth on Jan. 30 1972.

2. Central African Republic. 3. Republic of Congo. 4. Gabon. 5. Senegal. 6. Chad. 7 Madagascar.

The following states come under overseas departments: Martinique, Guadeloupe, Reunion and French Guiana. The following are classed as overseas territories: French Polynesia, New Caledonia, French Somaliland, Comoro Islands, St. Pierre and Miquelon, Wallis and Fatuna Islands, Austral and Antarctic Territories.

The following states are affiliated to the Community in varying degrees according to the terms of their respective agreements with France: Ivory Coast, Dahomey, Upper Volta, Mauritania, Niger, Cameroon, Mali, Guinea, Togo and Algeria.

WEU

The Western European Union was formed by a treaty signed by UK, France, Netherlands, Belgium and Luxembourg at Brussels in 1948. Its object is to collaborate in economic, social and cultural matters and to provide for collective defence. The responsibility for collective defence was handed over to the NATO in 1950. In 1954 West Germany and Italy joined the Union The Union was formally inaugurated in 1955.

The Council of the Union consists of the representatives of the seven powers, *viz.*, UK, France, Netherlands, Belgium, Luxembourg, Western Germany, and Italy. Various sub committies on armaments, economic, social and cultural matters have been set up by the Council. *Members:* 7. *Headquarters:* London, UK.

European Parliament

The European Parliament is composed of 142 parliamentary representatives from the six countries of Europe who are signatories to the Treaty of Paris (1951) which formed the ECSC and the Treaty of Rome (1957) which formed the EEC and the EURATOM. The delegates to the parliament are elected by the respective legislatures of the member countries in fixed proportions *Headquarters*: Luxembourg.

Council of Europe

The Council of Europe was set up in May 1949, by the foreign ministers of Belgium, Denmark, France, Irish Republic, Italy, Luxembourg, Netherlands, Norway, Sweden and UK. Turkey and Greece joined the Council in Jnly, 1949. Iceland became a member in 1950. The Federal Republic of Germany became a full member in 1951. Austria joined up in 1956, Cyprus in 1961, Switzerland in 1963 and Malta in 1965.

The objects of the Council are to achieve a greater unity among its members, regarding the ideals of democracy believed in by them and to facilitate economic and social progress of the member countries.

The main organs of the Council are: (i) The Committee of Ministers consisting of the foregin ministers of the member governments. (ii) The Consultative Assembly, which now consists of 144 members representing the legislatures of the member countries in fixed proportions. The Committee of Ministers is the executive authoritiy, while the Consultative Assembly is the deliberative body. The Assembly meet once a year. The official languages of the Council are English and French. *Members:* 18 *Headquarters:* Strasbourg, France.

Court of Justice

This Court consists of 7 judges nominated by common agreement among the six member states of the ECSC, EEC and EURATOM. This Court decides all matters of dispute arising from the administration of the Treaty of Paris and the Treaty of Rome *Headquarters:* Luxembourg.

ASPAC

The Asian and Pacific Council was set up in June 1966 to promote co-operation and solidarity among Asian and Pacific countries. ASPAC was originally formed by the following countries - Australia, China, (Taiwan), Japan, Korea (South), Malaysia, New Zealand, Philippines, Thailand and Vietnam (South). Other Asian and Pacific countries are entitled to become members. The council composed of the Foreign Ministers of member countries, is the Supreme executive body of the organisation It has no permanent headquarters The headquarters are provided each year by the host country, which is the venue of the council meeting

OAS

Organisation of American States. The Charter of the OAS was adopted in April 1948, at the ninth International Conference of American States at Bogota, Colombia. The OAS absorbed previous Inter-American organisations like the Pan American Union and defined the work of the special agencies within the Inter-American system. The OAS is practically a regional agency of the UNO in the western hemisphere and is intended to promote mutual understanding and help among American countries.

Twenty two American countries are the members of the organisation, with equal rights, each country possessing one vote. The members are: Argentina Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Trinidad and Tobago, Venezuela and USA. In Jan. 1962 Cuba was excluded from the OAS at a special meeting held at Punta del Este, Uruguay.

Inter-American Conference is the supreme policy making body of the OAS. It meets once in 5 years. The Pan-American Union, is the central organ and general secretariat of the Organisation. The Secretary General and the Asst. Secretary General who head the Union, are elected by the Council for 10 year terms. *Headquarters:* Washington D. C , USA.

Arab League

The Arab League was the result of a national awakening of the Arabs following the fall of the Ottoman Empire in the First World War. It took shape at a conference in Alexandria in 1944 in which Egypt, Iraq, Syria, Lebanon, Jordan, Saudi-Arabia and the Palestine Arabs were represented. The Alexandria conference formulated what is called "Alexandria Protocol" which defined the aims and functions of the League of Arab states The League was formally brought into existence by a treaty which was signed by Egypt, Lebanon, Syria, Jordan, Iraq, Saudi Arabia and Yemen at Cairo in 1945. Libya joined the League in 1953, Sudan in 1956, Tunisia and Morocco in 1958 and Kuwait and Algeria in 1962. Council of the League is the supreme body and is made up of one representative from each state The Council meets at least twice a year The Council and its various subcommittees are assisted by a Secretary General who has the status of an Ambassador.

Since 1961, when Syria left the League, the organisation had become defunct. For about 10 years, nothing was heard of the League. In 1971, with President Sadat assuming power in UAR, a new move was set afoot to revive the idea of the League. The new federation consists of UAR, Syria and Libya. The three countries will maintain their separate seats in the UNO, but in matters of common interest, they will be negotiating as one. The main idea underlying the new federation is to organise a common front against Israel. *Headquarters:* Cairo UAR

OAU

The Organisation of African Unity came into being in May 1963, when the heads of 30 African States met at Addis Ababa and signed a charter establishing a common organisation for all African States.

Its chief objects are unity and soildarity among African states, co-ordination of political, economic and social policies, the elimination of colonialism and the defence of the independence of member states. The supreme body in the OAU is the conference of heads of states or governments. Below it is the council of foreign ministers, and several committees for mediation and conciliation among independent African states and the liberation of African countries still subject to colonialism. The official languages of the organisation are French and English in addition to all the native African languages.

The Organisation has at present 41 member states

Headquarters: African Unity House, Addis Ababa, Ethiopia

OCAM

Organisation Commune Africainent Malgache was originally formed as an organisation of French speaking colonies in Africa. When OAU was formed in 1963, OCAM agreed to sink their political individuality in the larger interests of Africa. But by 1965 most of the French speaking states of Africa, had become irate at the policy of OAU. In February 1965, 13 French speaking African republics met at Nouakchott, the capital of Mauritania and decided to review the policy of OCAM President Boigny of the Ivory Coast was the leader of this revival movement. All French speaking states except Guinea and Mali have subscribed to the revived OCAM and the Republic of Zaire has become an active member of OCAM. *Members:* 14. *Headquarters:* Yaounde, Cameroon

NATO

North Atlantic Treaty Organisation. The first step in the formation of NATO was the Brussels Treaty of 1948 which created the Western European Union (WEU). In 1949, the foreign ministers of the WEU countries, *viz*, Belgium, France, Luxembourg, Netherlands and UK and the foreign ministers of Canada, Denmark, Iceland, Italy, Norway, Portugal and USA met in Washington and signed the North Atlantic Treaty. Greece and Turkey joined the Treaty in 1951 and the Federal Republic of Germany in 1954. Thus NATO is an organisation made up of 12 European states, two American states (Canada and USA)) and one Asiatic state, Turkey.

The Council is the supreme body of the NATO. It consists of the ministers of member states. Permanent representatives of member states attend the Council when ministers are absent. The Council at the ministerial level meets twice or thrice a year. The permanent representatives are in continual session. The Secretary General is appointed by and responsible to, the Council. The Military Committee is the supreme military body of NATO. It consists of the Chiefs of Staff of member states and meets once a year or whenever important military decisions are to be taken. In 1966 France withdrew from the Military Committee while remaining a member of the Council.

Members: 15. *Headquarters:* Brussels, Belgium.

SEATO

South East Asia Treaty Organisation was signed at Manila on September 8, 1954, between Australia, France, New Zealand, Pakistan, Philippines, Thailand, UK and USA. It provided for the collective defence of South-east Asia and was primarily aimed against Communist expansionism in Asia. The Treaty nations issued a declaration of principles called the Pacific Charter. The Charter proclaimed equal rights for all nations, the right of self-determination for all peoples, and the right to achieve independence for all countries in South-east Asia.

The Treaty is officially known as the South East Asia Collective Defence Treaty

The SEATO council consisting of the representatives of the treaty nations is the supreme body] of the organisation Under the council there is a Permanent Working Group (PWG) which is in permanent session Under the PWG are several military and civil committees. The Council and the PWG are assisted by a Secretary General and a Deputy Secretary General. *Members:* 8. *Headquarters*: Bangkok Thailand.

CENTO

Central Treaty Organisation originated in a defence pact signed by Turkey and Iraq in Baghdad in 1955 called the Baghdad Pact The Pact was joined by UK. Pakistan and Iran in the same year. In July 1958 Iraq ceased to be an active member of the Pact. In March 1959, USA signed bilateral agreements for defence with Turkey, Iran and Pakistan. In the same month Iran formally withdrew from the Pact. The central office of the Pact was shifted from Baghdad to Ankara in 1958 and the name of the organisation was formally changed from the Baghdad Pact to the Central Treaty Organisation (CENTO). The headquarters at Ankara, has a council of military deputies and several committees but it has no command structure as the NATO has. Nor has any specific national force been assigned to CENTO. *Members:* 4. *Headquarters:* Ankara, Turkey.

WP

Warsaw Pact was signed in Warsaw in May 1955 between USSR and its satellite states Albania (Albania has since left the Pact), Bulgaria, Czechoslovakia, E. Germany, Hungary, Poland and Romania. It was designed as a Soviet counterblast to the NATO and aimed at promoting the economic progress of the Pact states and safeguarding their security by collective action.

The Political Consultative Committee (PCC) is the supreme body of the Pact organisation It consists of the representatives of the Pact states. The PCC meets at least twice a year or whenever occasion arises. The Secretary General is the chief executive officer, with his permanent headquarters in Moscow. The Permanent Commission which was constituted in 1956 studies international policies and makes recommendations to the council from time to time.

The United Military Command under a C-in C nominated by the Soviet Union, with deputies nominated by the other Pact countries, constitutes the highest military authority. *Members:* 7. *Headquarters:* Moscow, Russia.

ECONOMIC ORGANISATION

Colombo Plan

The Colombo Plan for Co-operative economic development in south and South—east-Asia, was initiated by the British Commonwealth of Nations in 1950. Subsequently, South-east Asian countries, Japan and USA joined the plan. The members at present are, Afghanistan, Bhutan, Burma, Sri Lanka, India, Indonesia, Iran, Khmer Republic, Korea (South), Laos, Malaysia, Maldives, Nepal, Pakistan, Philippines, Singapore, Thailand and Vietnam (South). Members outside the region are, Australia, Canada, Japan, New Zealand, UK and USA. The Consultative Committee made up of the Ministers of member countries, constitutes the highest body in the Plan It is assisted by a Council for Technical Co-operation consisting of representatives of member States, which serves as the real executive body of the Plan. *Members:* 24. *Headquarters:* 12 Melbourne Avenue, P. O. Box 596, Colombo, Sri Lanka (Ceylon).

OEEC & OECD

Organisation for European Economic Co-operation came into being after the Seond World War, in response to an offer of aid from the US Secretary of State, Marshall. It was formed at a conference of European countries held in Paris in 1948. The following countries participated in the conference: U K, France, Austria, Belgium, Denmark, Greece, Iceland, the Irish Republic, Italy, Luxembourg, the Netherlands, Norway, Sweden, Portugal, Switzerland and Turkey. The Federal Republic of Germany and Spain joined the organisation later.

OECD (Organisation for Economic Co operation and Development) replaced the OEEC in 1961. The change of name indicates the altered status of the organisation. It is no longer a purely European organisation USA and Canada have joined the organisation as full members. It is thus an international organisation. The aims of the reconstituted organisation are to achieve the highest possible economic development in member countries, to raise the standard of living and to maintain financial stability. The council consisting of the ministers of the member countries, is the supreme body of the organisation. The council is helped by three high level committees- Economic Policy Committee, Development Aid Committee and Trade Committee *Members:* 24. *Headquarters:* Paris, France.

ECSC

European Coal and Steel Community was created in pursuance of a treaty signed by six countries of Europe, in Paris in 1951. The countries were: France, Belgium, Netherlands, Luxembourg. Federal Republic of Germany and Italy. The treaty affirmed a closer political union of the six countries and created a common market for coal, iron and steel.

The community is made of (i) A Common Assembly of 78 representatives elected by the parliaments of member countries in fixed proportions meeting once a year (ii) A Consultative Committee representing producers, workers, dealers and consumers of coal and steel (iii) The High Authority, consisting of 9 members, 8 of whom are nominated by common agreement among the states and the ninth co-opted by the other eight. They execute the decisions of the Common Assembly in the light of the recommendations of the Consultative Committee. The following special organs also function (i) The Council of Ministers, composed of one minister from each State. They co-ordinate the separate policies of their respective countries with the common policy of the Community. (ii) The Court of Justice, consisting of 7 judges appointed by the member states They decide on the legality of the acts of the High Authority or the decisions of the common Assembly or the Council of Ministers. *Head quarters:* Luxembourg.

EURATOM

European Atomic Energy Community was formed in pursuance of a treaty signed in Rome in 1957 by the six countries who formed the ECSC and the EEC. The work of the EURATOM is controlled by the same organs as those of the EEC But the executive powers are vested in a commission of 5 members nominated by the Council of Ministers and advised by a Scientific and Technical Committee of 20 members and an Economic and Social Committee of 101 members. All major decisions are however taken by the Council of Ministers, which is formed of one minister from each member state. The object of the EURATOM is the development of nuclear energy for peaceful purposes. The EURATOM has signed agreements with USA, Canada, UK and Brazil for research programmes on various aspects of nuclear power. The EURATOM is also a major partner in the OEEC (now OECD) and the Dragon project for an advanced gas cooled reactor in Dorset (England) and has a share in the Halden reactor, sponsored by the OEEC. *Headquarters:* Brussels, Belgium.

EEC or ECM

European Economic Community (EEC) or **European Common Market** (ECM).

EEC, now Commonly known as the European Common Market (ECM) is a development on ECSC It was brought into existence by the Treaty of Rome, signed by the six countries of ECSC in 1957. Its main task is to integrate the economics of the six member countries for a specified period (10 to 15 years). The primary agency for this integration is a common market for all commodities (except coal and steel already provided by ECSC). The EEC aims at a progressive reduction and the ultimate abolition of all tariffs and the free import and export of commodities among member states and the unrestricted movement of labour and capital as between them. It has also established a European Investment Bank, to help less developed countries in Europe.

A Council of Ministers consisting of one member from each government takes decisions on common questions and lays down common policies. The Council is helped by a permanent staff called the European Commission, which supervises the work of the Community. A Court of Justice of seven judges, nominated by agreement will decide on all matters of dispute in the administration of the treaty, (see the Court of Justice, *supra*). The general body of the Community is the Assembly of 142 members elected from member states in agreed proportions. The Assembly exercises general control over the work of the ECSC, EEC and EURATOM.

Expansion of the ECM. On 22nd January 1972, Britain, Ireland, Denmark and Norway signed the treaty of accession to the EEC at Egmont Palace, Brussels. The accession was subject to ratification by a referundum, in the case of Denmark and Norway. In Sept 1972, Norwegian referundum repudiated the accession and Norway has ceased to be a member of the EEC. Denmark however has ratified the accession by a referundum in Oct. 1972. Thus EEC now consists of 9 countries, instead of ten.

The EEC is not only an economic union but also a political one. It is the political overtones of the EEC which prevented other European nations from joining it, particularly the EFTA countries-Austria, Sweden, Switzerland, Portugal, Iceland and Norway.

In order to accommodate the European nations, who remain outside the EEC, an agreement was signed at Brussels in July 1972 between the nine countries of the EEC and the six members of the EFTA. This agreement created a new organisation, the European Free Trade Area, with effect from Jan. 1973 (See EFTA). *Headquarters:* Brussels.

EFTA

European Free Trade Association was formed in 1960, as the result of a convention signed by seven countries of Europe at Stockholm. The countries were UK, Austria, Denmark, Norway, Sweden, Switzerland and Portugal. This Association was formed on the pattern of the EEC and has the same objectives: reduction of tariffs, removal of restriction on imports and exports etc. The seven countries who formed the EFTA were generally called the Outer Seven, in contradistinction to the six countries of the EEC, who were called the Inner Six

The original intention of the EFTA was not to provide a competitive organisation to the EEC, but to create a purely economic body, without the political commitments of the EEC.

The formation of the Eurpean Free Trade Area (see EEC) has provided a common ground for economic co-operation among the fifteen European countries who have signed the agreement at Brussels in July 1972—France, Belgium, Netherlands, Luxembourg, West Germany, Italy (original six members of the EEC), Austria, Sweden, Switzerland, Portugal, Iceland and Norway (members of the EFTA).

The old EFTA (European Free Trade Association) has become the new EFTA (European Free Trade Area). The 15 nation EFTA envisages a five year programme to eliminate almost all industrial tariffs among them without committing the non-EEC members to any political union. The Fifteens cover about 300 million people and would account for almost half of world's trade, compared with 14 per cent for the USA, 4 per cent for the Soviet Union and 6.5 per cent for Japan. They thus form the world's foremost and the most formidable trading power.

CMEA

The council of Mutual Economic Assistance was founded in 1949 to assist the economic development of its member states through joint utilisation and co ordination of resources. The members are, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, ISSR and Mangolian People's Republic. Mongolian People's Republic was admitted in 1962. Albania. one of the original members, withdrew in 1961. *Headquarters:* Moscow, USSR.

ESRO

European Space Research Organisation was formally established in 1964 to promote collaboration among European States, in space research and technology exclusively for peaceful purposes. The present members are Belgium, Denmark, France, West Germany, Italy, Netherlands, Spain, Sweden, Switzerland and UK. Austria, Ireland and Norway participate as observers.

The Council, consisting of two delegates from each member State takes the major financial decisions. The actual executive is the Director General, assisted by a Directorate. *Headquarters:* Paris, France.

ADB

The **Asian Development Bank** was sponsored by ECAFE and started functioning in 1966. All powers of the Bank are vested in a Board of Governors, who delegate their powers to a Board of Directors, for the day to day administration of the Bank. *Members:* 22 regional and 14 non-regional members. *Headquarters:* Philippines.

ASEAN

The **Association of South East Asian Nationals** was established in 1967 at Bangkok, Thailand to accelerate economic progress and to maintain the economic stability of South-east Asia. ASEAN replaces ASA (Association of South East Asia) composed of Malaysia, Philippines and Thailand The present members are Indonesia, Malaysia, Philippines, Singapore and Thailand. ASEAN has its supreme body, the Ministerial Conference of the Foreign ministers of member states. Day to day operations are looked after by a standing committee, formed by the Conference.

EACSO

East African Common Services Organisation. When Tanganyika, since renamed Tanzania, became independent in 1961, the old East Africa High Commission which covered Tanganyika, Uganda and Kenya, was reconstituted as East African Common Services Organisation The organisation is controlled by the heads of the three States, the President of Tanzania, and the Prime Ministers of Uganda and Kenya. These form the East African Common Services Authority and constitute the highest policy-making body They are assisted by 5 committees of three ministers one from each state, who control five groups of common finance—communications, commercial and industrial co-ordination, social and research services and labour.

The Central Legislative Assembly is the legislating authority in common services. It consists of a speaker, the 15 ministers of the 5 committees, 9 members from each state elected by their respective legislatures and two executive members—the Secretary General and the Legal Secretary. The Organisation is planning to form an East African Common Market on the lines of the European Common Market. *Headquarters:* Nairobi.

NON-GOVERNMENTAL ORGANISATIONS

The Red Cross

The **International Red Cross** was founded in 1863. It assumed its present name in 1876. The father of the Red Cross, Joan H. Dunant was at first ignored and then ousted by the very people, whom he had put up in positions of power and prestige. But the world awakening rather late to the genius of this humanitarian finally honoured him, with the Nobel Prize for Peace in 1901.

The principles for which the Red Cross stands are Humanity, Impartiality, Neutrality, Independence and Universality The first Geneva Convention regarding Red Cross was signed in 1864 by 12 countries. In 1929 and 1949, two other conventions were signed by a goodly number of states Under these conventions the Red Cross has taken upon itself the duty to protect the wounded and the sick in the armed forces, prisoners of war and civilians. The Red Cross is a voluntary organisation. But there can only be one Red Cross Society in every State. It is open to all and is bound to carry out its work throughout the State, without distinction of class, party or place

The supreme deliberative body of the International Red Cross is composed of delegations of the National Red Cross, Red Crescent, Red Lion and Sun Societies of the States who are parties to the Geneva Convention and of the International Committee of the Red Cross (ICRC) and the League of Red Cross Societies (LORCS). The main function of the conference is to secure a unit of effort between national societies. The conference ordinarily meets every 4 years.

The Standing Commission is the real executive body It meets at least twice a year. It consists of two members each from the ICRC and the LORCS and five members, chosen by the conference. *Headquarters:* Geneva, Switzerland.

WFTU

World Federation of Trade Unions was founded in 1945. World Trade Union Congress, which meets every 4 years, takes decisions on all policy matters and elects the General Council and the Executive Bureau. The General Council meets once a year. The Executive Bureau meets at least three times a year and conducts most of the Executive work of WFTU. In 1972, WFTU had 55 affiliated National

Federations and 134,000,000 individual members. A good number of members withdrew from the Federations in 1949.

Headquarters: Prague, Czechoslovakia.

WCL

World Confederation of Labour was founded in 1920 at the International Federation of Christian Trade Unions (IFCTU) and was reconstituted under the present title in 1968. The supreme body of the confederation is the Congress, which meets every four years The Congress appoints the General Council which meets at least once a year. The Executive Board functions under the General Council. There are over 140 million members distributed in 81 countries.

Headquarters: Brussels, Belgium.

ICFTU

The International Confederation of Free Trade Unions was formed in 1949 by trade union federations which had withdrawn from the World Federation of Trade Unions. The highest authority, the ICFTU Congress meets every three years The congress elects the Executive Board and the General Secretary. The Executive Board meets twice a year. The Board chooses a Sub Committee to deal with urgent matters that come between Board meetings. ICFTU has 117 affiliated national centres and individual unions in 93 countries, with over 47 million members.

Headquarters· Brussels, Belgium

IATA

International Air Transport Association was founded in 1945 to promote safe, regular and economical air transport and to provide a forum for collaboration. At present there are 40 international air lines (active members) and 19 domestic air lines (associate members).

The Annual General Meeting is the ultimate authority in the Association. The Executive Committee consists of 18 elected members.

Headquarters: Montreal, Canada and Geneva, Switzerland.

ICC

International Chamber of Commerce Paris, France is a private and non-political organisation. operating as a permanent centre for businessmen, the world over. It was established in 1919. It has national committees in 43 States, including many developed states like Japan, France, West Germany, Italy, Sweden, Denmark, Norway, Netherlands, Canada, Australia, UK and USA and developing states like India, Pakistan, Iran etc. Associate member states, without national committees, number 28, including Aghanistan, Ethiopia, Hong Kong, Lebanon, Syria, Zaire etc.

The Congress is the supreme body, composed of delegates from member states and observers from other states. It meets every two years. The International Council is the govenring body of the Chamber which meets at least twice annually and reports to the Congress. It is aided by Technical Commissions which study business trends and provide information and guidance to members. It has a Court of Arbitration, which settles international commercial disputes.

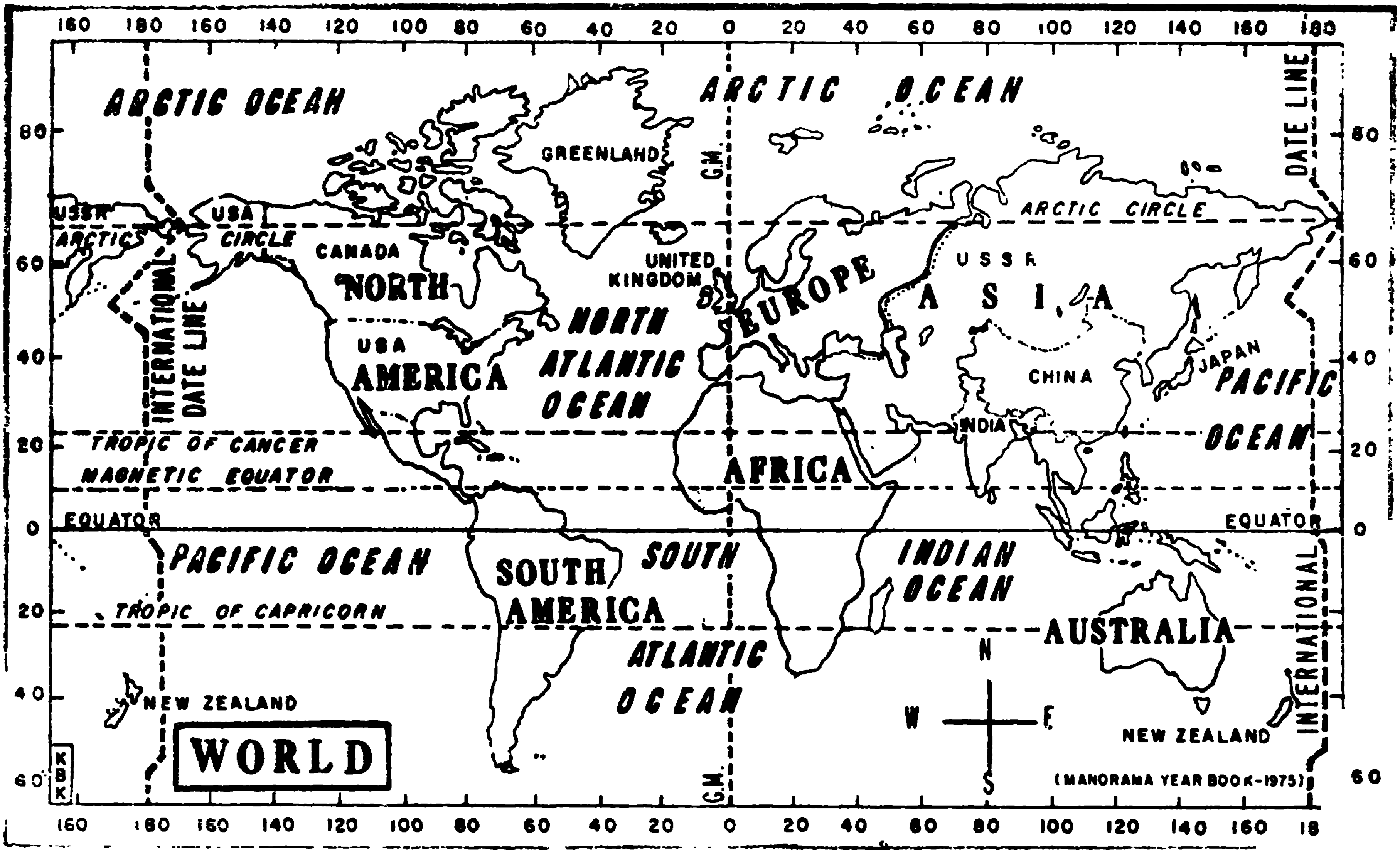
The Midnight Sun

One of the spectacular effects of the Earth's tilted axis, is the Midnight Sun. In the northern hemisphere, when the earth's axis leans towards the Sun, the lands lying within the Arctic Circle rotate for a time entirely in the light. So this part of the world has continuous day for some months. The days of light in the Arctic are called the Arctic Summer. During the nights of the Arctic Summer the Sun circles round and round in the sky but never goes below the horizon. It looks as if it is going to set, but at midnight it starts to rise again. This is the Midnight Sun. The northern portion of Norway lies within the Arctic circle and experiences the phenomenon of the Midnight Sun. Norway is therefore called the 'Land of the Midnight Sun'.

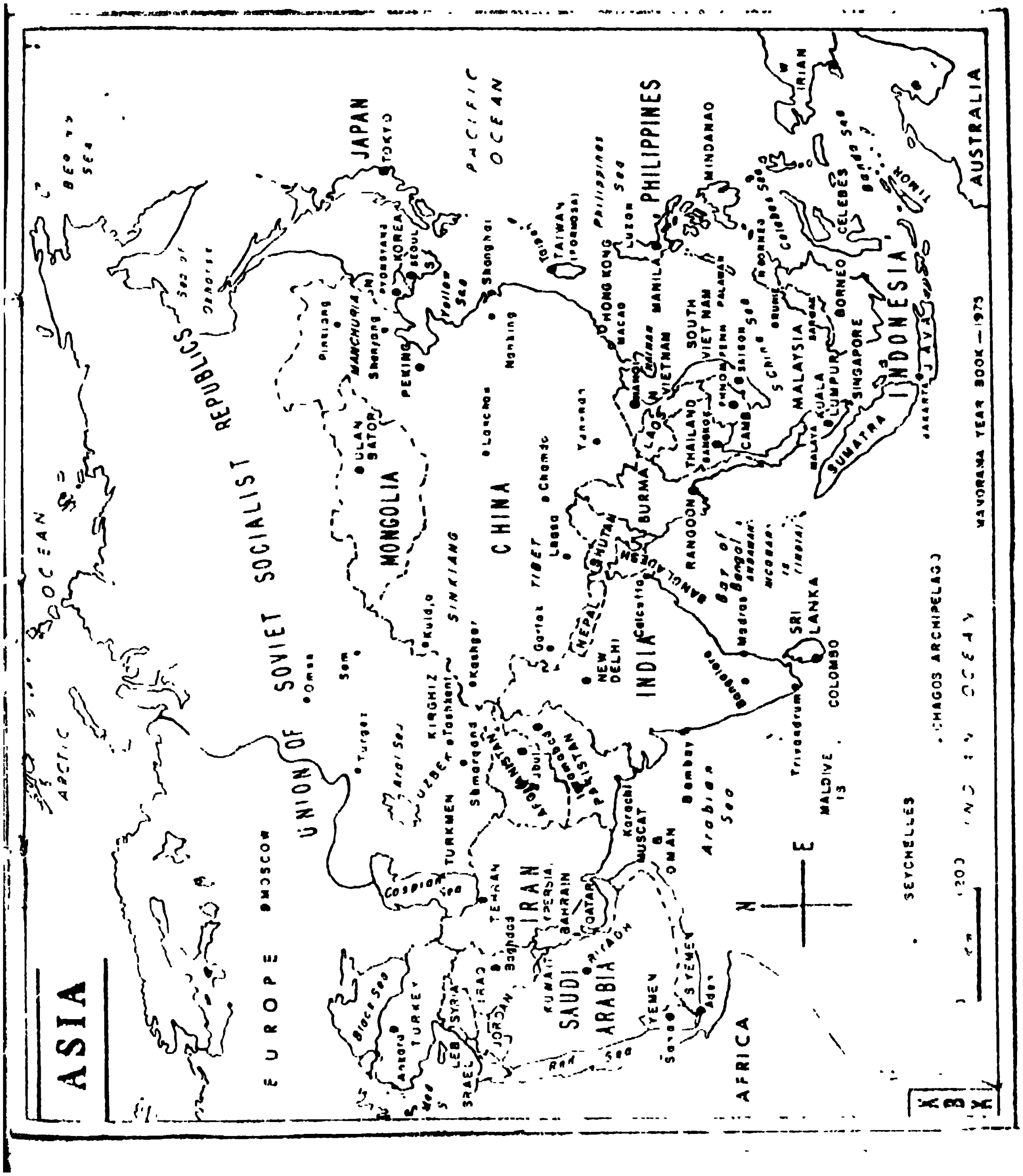
IPI

International Press Institute is a non-governmental association of editors, publishers and news broadcasters. who function independently of governments, and support the principles of a free and responsible press The Annual Assembly composed of delegates from all member countries lays down the Institute policies, elects the Executive Board and appoints the Director The Board is the governing body of the Institute. It consists of editors from 20 countries, who are elected by the Annual Assembly It meets at least once a year or whenever necessary. There are over 1,600 members (publishers and editors of press, radio and TV systems) from 60 countries, all over the world.

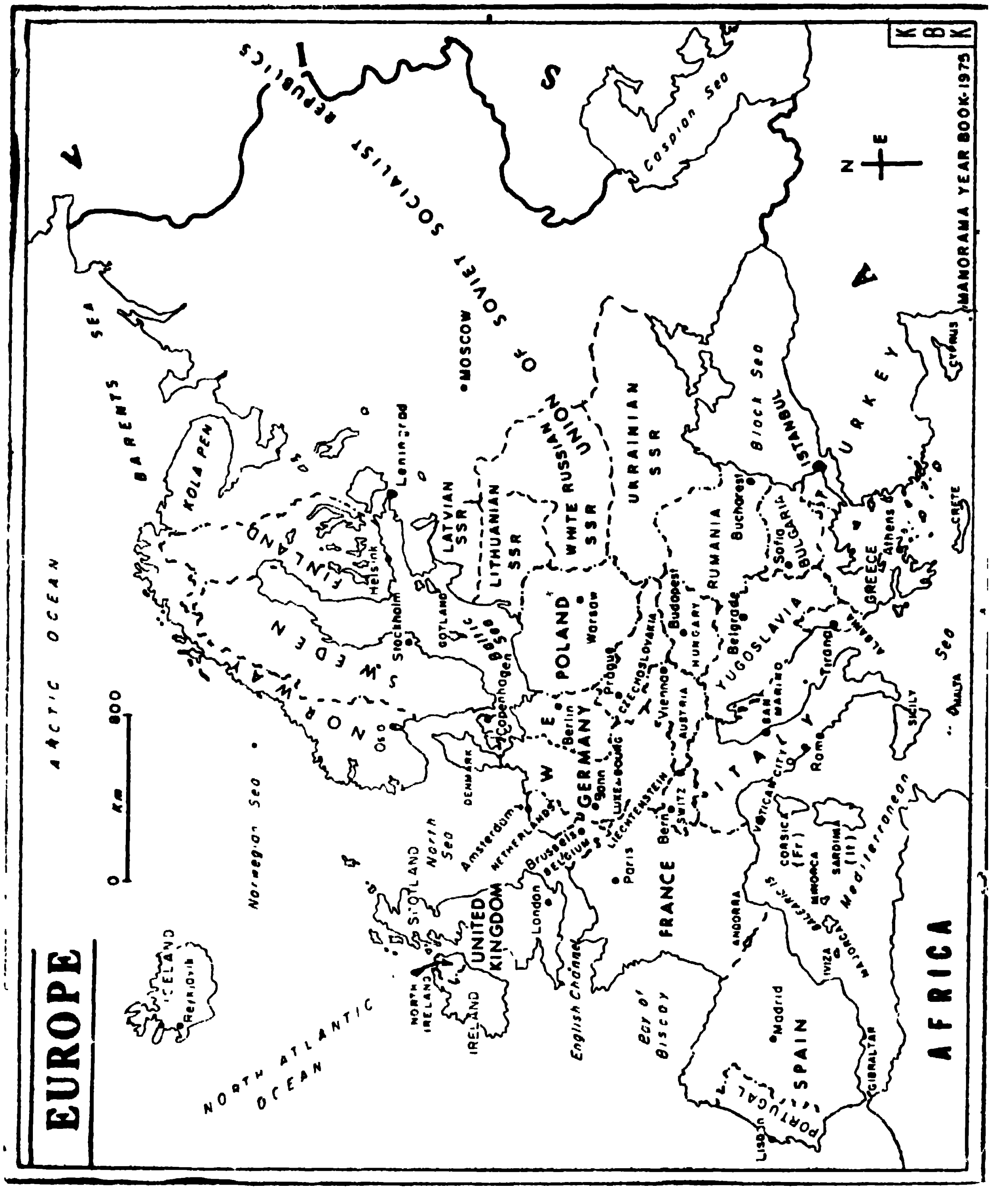
Headquarters: Zurich, Switzerland.

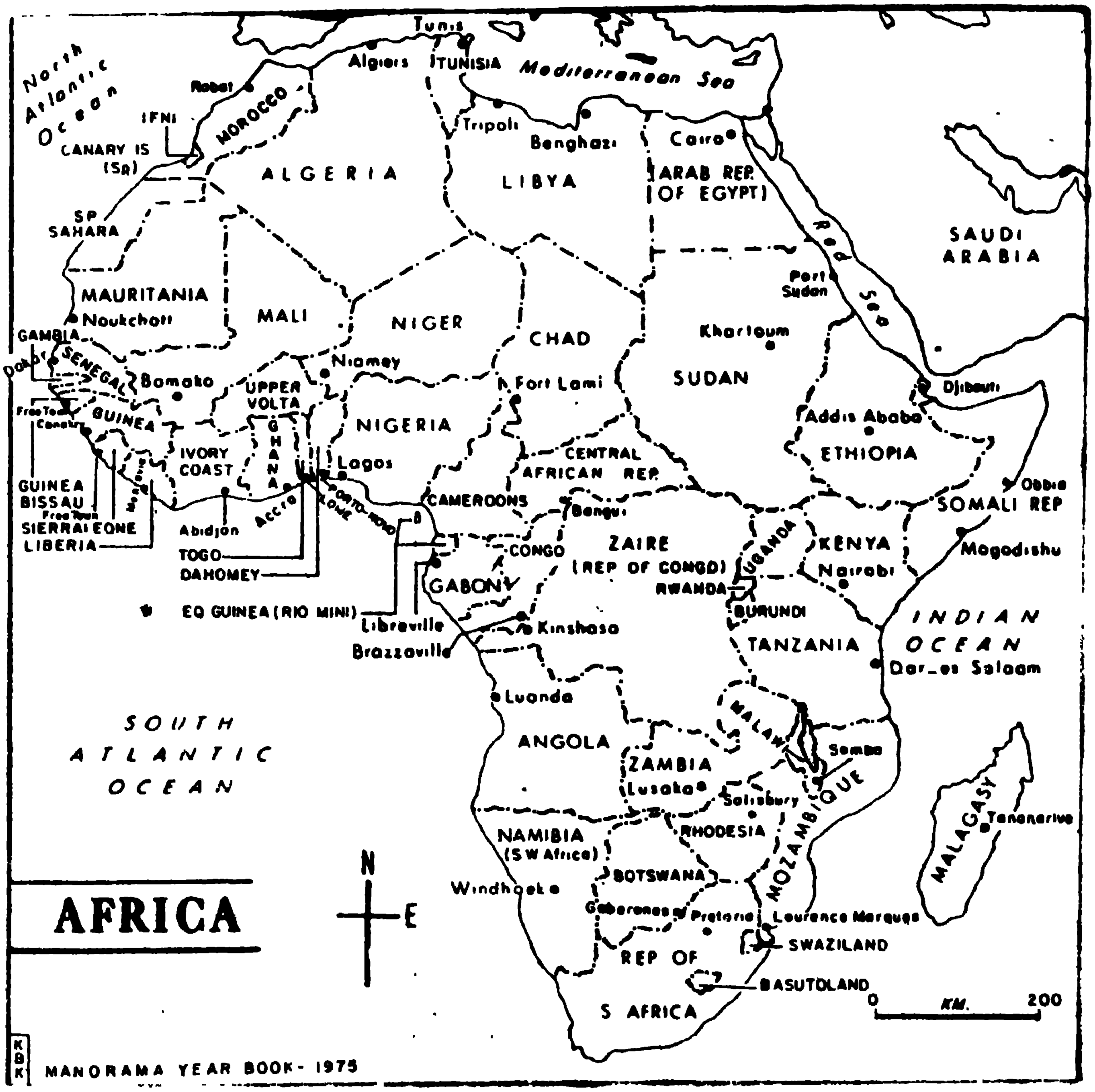


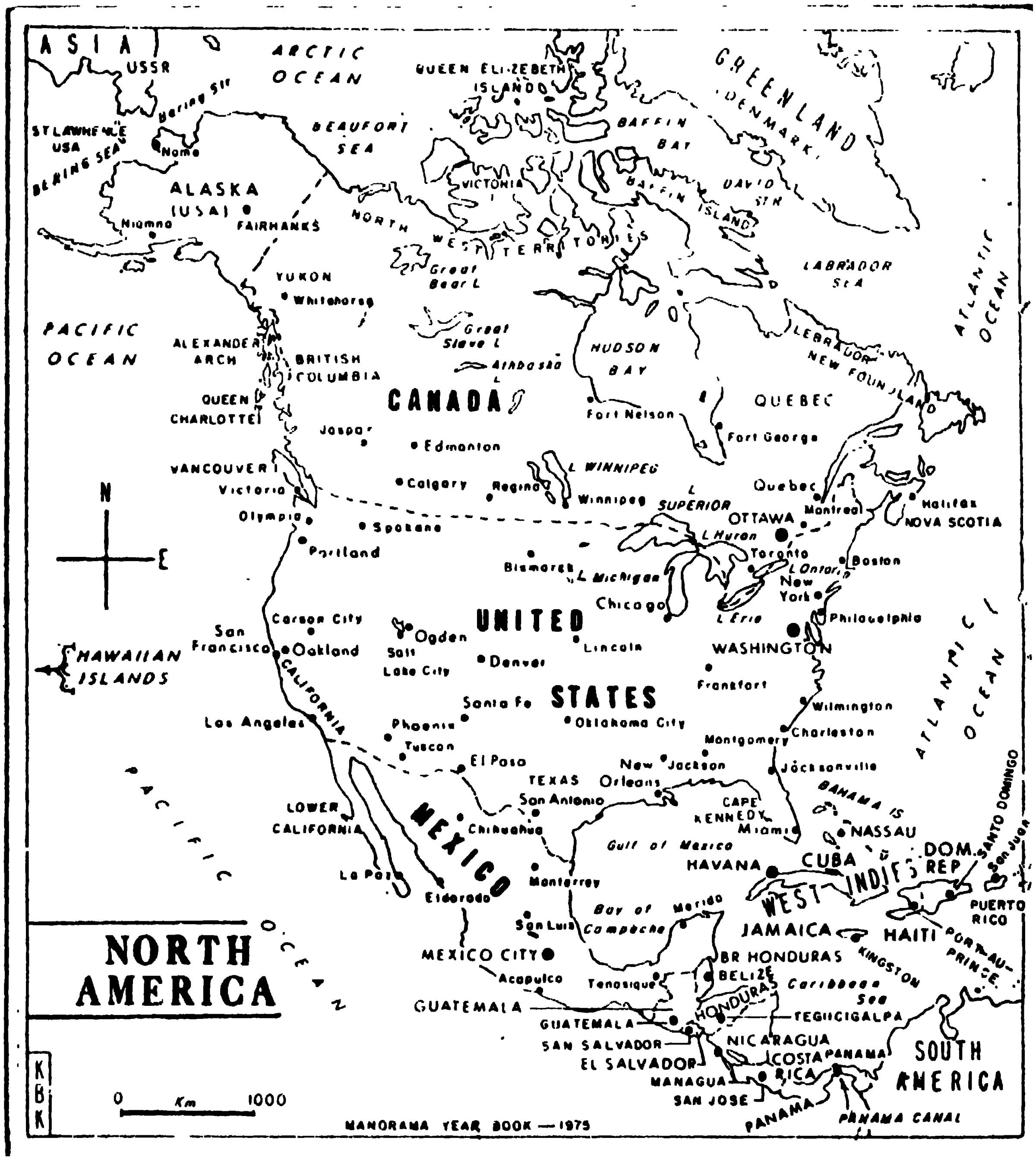
(MANORAMA YEAR BOOK-1975)

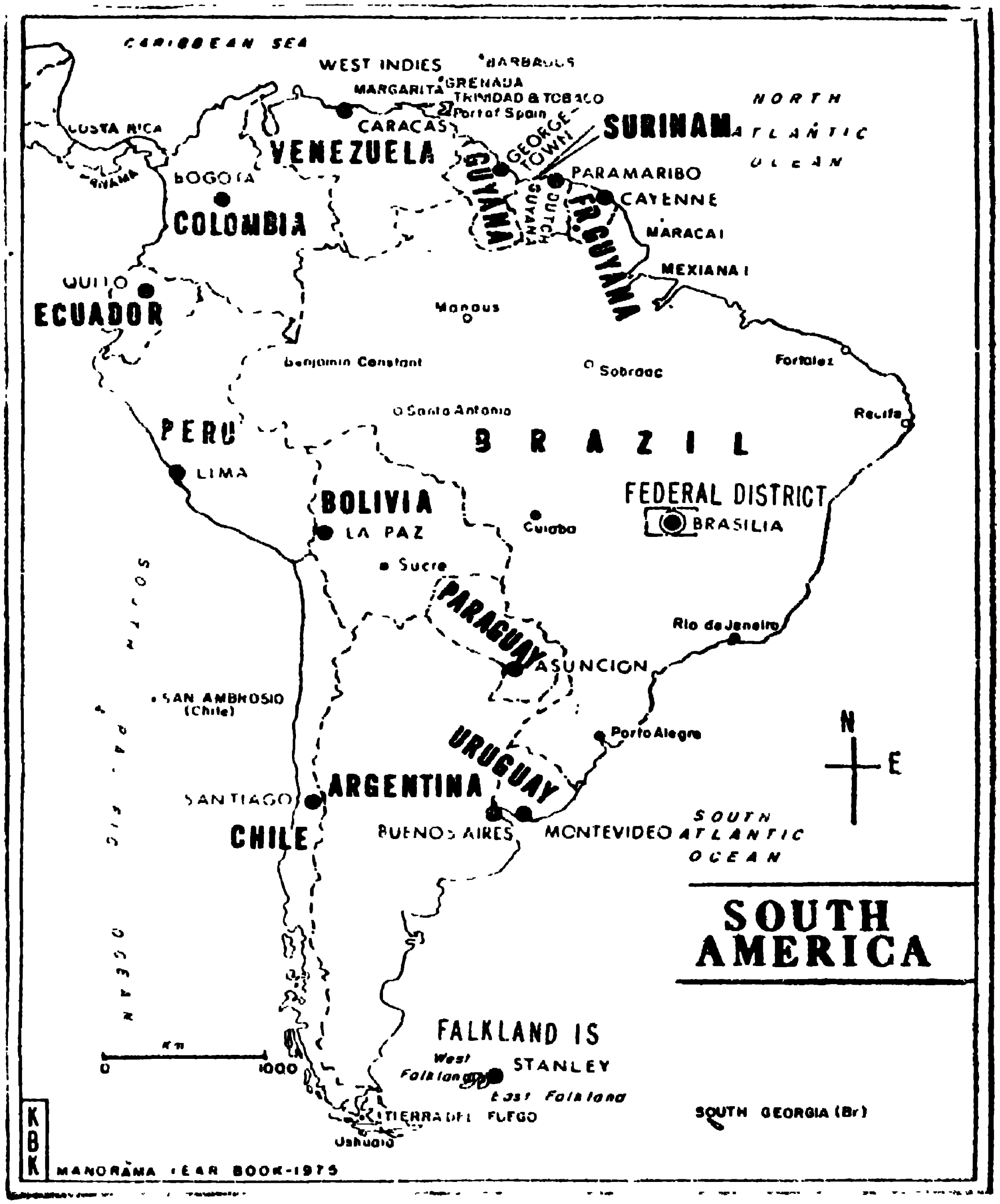


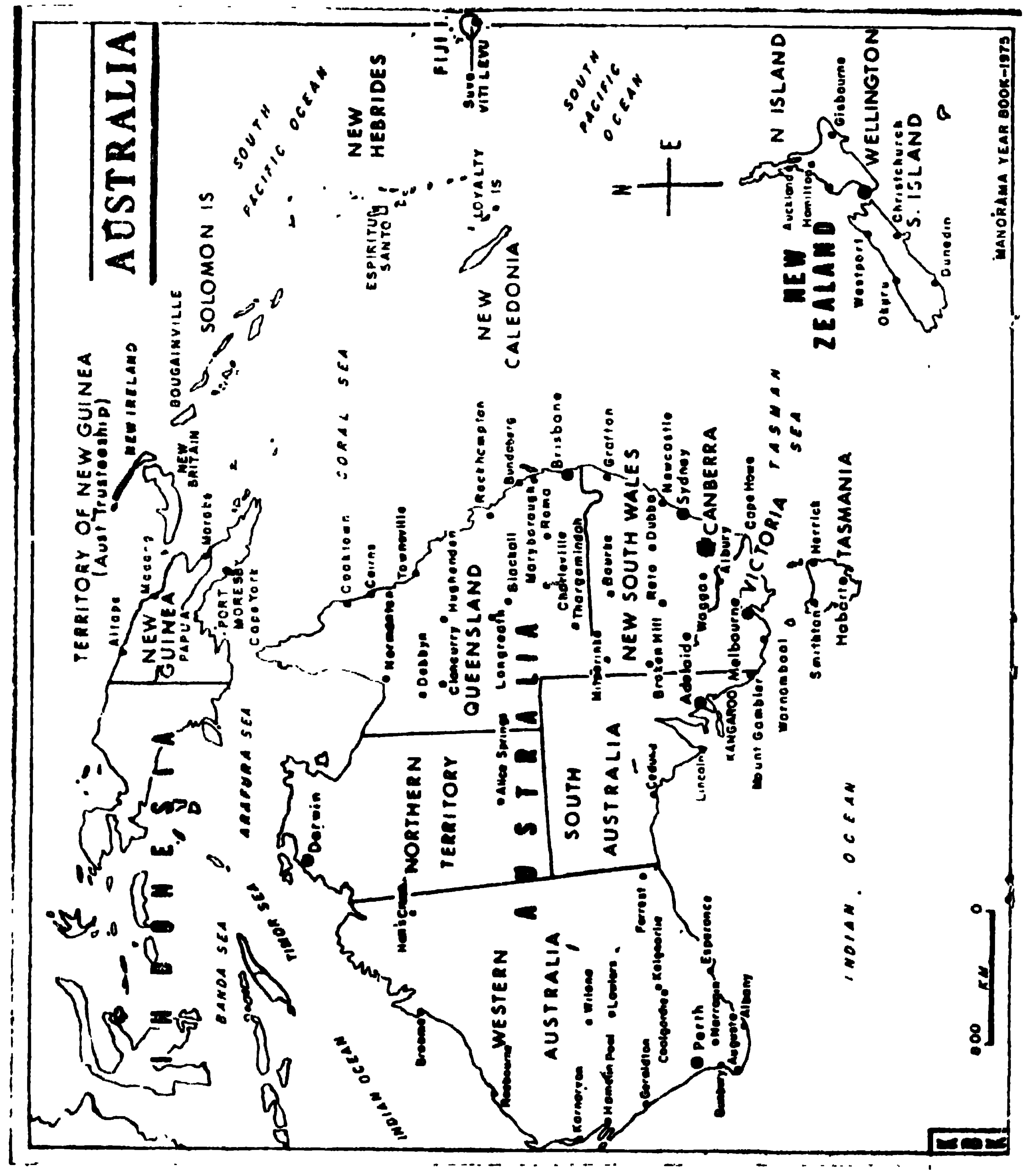
MANORAMA YEAR BOOK—1975


EUROPE
ICELAND
Reykjavik
NORTH ATLANTIC OCEAN
Norwegian Sea
ARCTIC OCEAN
BARENTS SEA
KOLA PEN
0 Km 800
NORWAY
Oslo
SWEDEN
Stockholm
FINLAND
Helsinki
Leningrad
MOSCOW
UNION OF SOVIET SOCIALIST REPUBLICS
U S S R
LATVIAN SSR
LITHUANIAN SSR
WHITE RUSSIAN SSR
UKRAINIAN SSR
Caspian Sea
Black Sea
GOTLAND
Baltic Sea
DENMARK
Copenhagen
North Sea
SCOTLAND
UNITED KINGDOM
NORTH IRELAND
IRELAND
London
English Channel
Amsterdam
NETHERLANDS
Brussels
BELGIUM
LUXEMBOURG
W. E. GERMANY
Bonn
Berlin
POLAND
Warsaw
Prague
CZECHOSLOVAKIA
Vienna
AUSTRIA
HUNGARY
Budapest
RUMANIA
Bucharest
BULGARIA
Sofia
YUGOSLAVIA
Belgrade
ALBANIA
Tirana
GREECE
Athens
CRETE
CYPRUS
ISTANBUL
TURKEY
LIECHTENSTEIN
SWITZ
Bern
FRANCE
Paris
Bay of Biscay
ITALY
Rome
VATICAN CITY
SAN MARINO
CORSICA (Fr)
SARDINIA (It)
SICILY
MALTA
Mediterranean Sea
ANDORRA
SPAIN
Madrid
PORTUGAL
Lisbon
GIBRALTAR
BALEARIC IS
MINORCA
MAJORCA
IVIZA
AFRICA
A
N
E
K B K
MANORAMA YEAR BOOK-1975


North Atlantic Ocean
Rabat
IFNI
MOROCCO
CANARY IS (Sp)
Tunis
Algiers
TUNISIA
Mediterranean Sea
Tripoli
Benghazi
Cairo
ALGERIA
LIBYA
ARAB REP. OF EGYPT
SP SAHARA
Red Sea
SAUDI ARABIA
Port Sudan
MAURITANIA
Noukchott
MALI
NIGER
CHAD
Khartoum
SUDAN
GAMBIA
Dakar
SENEGAL
Bamako
Niamey
UPPER VOLTA
Fort Lami
Djibouti
Free Town
Conakry
GUINEA
GHANA
NIGERIA
Addis Ababa
ETHIOPIA
IVORY COAST
Lagos
CENTRAL AFRICAN REP.
GUINEA BISSAU
Monrovia
Free Town
SIERRA LEONE
LIBERIA
Abidjan
Accra
Lome
Porto Novo
CAMEROONS
Bangui
Obbia
SOMALI REP
TOGO
DAHOMEY
CONGO
ZAIRE (REP OF CONGO)
UGANDA
KENYA
Mogadishu
Nairobi
GABON
RWANDA
EQ GUINEA (RIO MINI)
Libreville
Kinshasa
BURUNDI
INDIAN OCEAN
Brazzaville
TANZANIA
Dar-es Salaam
Luanda
MALAWI
SOUTH ATLANTIC OCEAN
ANGOLA
Somba
ZAMBIA
Lusaka
Salisbury
MOZAMBIQUE
MALAGASY
Tananarive
NAMIBIA (S W Africa)
RHODESIA
BOTSWANA
Windhoek
Gaberones
Pretoria
Laurence Marques
AFRICA
N
E
SWAZILAND
REP OF S AFRICA
BASUTOLAND
0 KM. 200
KBK
MANORAMA YEAR BOOK - 1975


NORTH AMERICA
ASIA
USSR
ARCTIC OCEAN
QUEEN ELIZEBETH ISLANDS
GREENLAND (DENMARK)
Bering Str
ST LAWRENCE USA
BERING SEA
Nome
BEAUFORT SEA
BAFFIN BAY
ALASKA (USA)
Niamna
FAIRBANKS
VICTORIA I
BAFFIN ISLAND
DAVIS STR
NORTH WEST TERRITORIES
Great Bear L
LABRADOR SEA
ATLANTIC OCEAN
YUKON
Whitehorse
PACIFIC OCEAN
ALEXANDER ARCH
Great Slave L
BRITISH COLUMBIA
Athabasca L
HUDSON BAY
LABRADOR
NEW FOUNDLAND
QUEEN CHARLOTTE I
CANADA
Fort Nelson
QUEBEC
Jaspar
Edmonton
Fort George
VANCOUVER I
Victoria
L WINNIPEG
Calgary
Regina
Winnipeg
L SUPERIOR
Quebec
Montreal
Halifax
NOVA SCOTIA
Olympia
OTTAWA
Spokane
L Huron
Toronto
Portland
Bismarck
L Michigan
L Ontario
Boston
New York
Chicago
Carson City
UNITED STATES
L Erie
Philadelphia
San Francisco
Oakland
Ogden
Salt Lake City
Denver
Lincoln
WASHINGTON
HAWAIIAN ISLANDS
CALIFORNIA
Frankfort
Santa Fe
Oklahoma City
Wilmington
Los Angeles
Phoenix
Tuscon
Montgomery
Charleston
El Paso
New Orleans
Jackson
Jacksonville
TEXAS
San Antonio
CAPE KENNEDY
BAHAMA IS
Miami
NASSAU
LOWER CALIFORNIA
MEXICO
Chihuahua
Gulf of Mexico
HAVANA
CUBA
DOM. REP
SANTO DOMINGO
San Juan
La Paz
Monterrey
WEST INDIES
Eldorado
Bay of Campeche
Merida
PUERTO RICO
San Luis
JAMAICA
HAITI
PORT-AU-PRINCE
KINGSTON
MEXICO CITY
BR HONDURAS
BELIZE
Acapulco
Tenosique
Caribbean Sea
GUATEMALA
HONDURAS
TEGUCIGALPA
GUATEMALA
SAN SALVADOR
NICARAGUA
EL SALVADOR
COSTA RICA
PANAMA
SOUTH AMERICA
MANAGUA
SAN JOSE
PANAMA
PANAMA CANAL
N
E
0 Km 1000
KBK
MANORAMA YEAR BOOK — 1975


CARIBBEAN SEA
WEST INDIES
BARBADOS
GRENADA
MARGARITA
TRINIDAD & TOBAGO
Port of Spain
CARACAS
VENEZUELA
COSTA RICA
PANAMA
BOGOTA
COLOMBIA
GEORGETOWN
GUYANA
SURINAM
DUTCH GUYANA
PARAMARIBO
CAYENNE
FR. GUYANA
MARACA I
MEXIANA I
NORTH ATLANTIC OCEAN
QUITO
ECUADOR
Manaus
Benjamin Constant
Sobraac
Fortalez
Recife
Santo Antonio
PERU
LIMA
BRAZIL
FEDERAL DISTRICT
BRASILIA
BOLIVIA
LA PAZ
Cuiaba
Sucre
PARAGUAY
ASUNCION
Rio de Janeiro
SOUTH PACIFIC OCEAN
SAN AMBROSIO (Chile)
Porto Alegre
N
E
URUGUAY
ARGENTINA
SANTIAGO
CHILE
BUENOS AIRES
MONTEVIDEO
SOUTH ATLANTIC OCEAN
SOUTH AMERICA
Km
0
1000
FALKLAND IS
West Falkland
STANLEY
East Falkland
TIERRA DEL FUEGO
Ushuaia
SOUTH GEORGIA (Br)
KBK
MANORAMA YEAR BOOK-1975


AUSTRALIA
TERRITORY OF NEW GUINEA (Aust Trusteeship)
NEW IRELAND
NEW BRITAIN
BOUGAINVILLE
SOLOMON IS
SOUTH PACIFIC OCEAN
NEW HEBRIDES
ESPIRITU SANTO
FIJI
Suva
VITI LEVU
LOYALTY IS
NEW CALEDONIA
SOUTH PACIFIC OCEAN
N
E
NEW ZEALAND
N ISLAND
Auckland
Hamilton
Gisborne
WELLINGTON
S. ISLAND
Westport
Christchurch
Dunedin
CORAL SEA
TASMAN SEA
Aitape
Madang
Morobe
NEW GUINEA
PAPUA
PORT MORESBY
Cape York
Cooktown
Cairns
Townsville
Normanton
Cloncurry
Hughenden
Longreach
Blackall
Rockhampton
Bundaberg
Maryborough
Roma
Brisbane
Charleville
Thargomindah
QUEENSLAND
Grafton
Newcastle
Sydney
CANBERRA
NEW SOUTH WALES
Bourke
Dubbo
Broken Hill
Albury
Wagga
Cape Howe
VICTORIA
Melbourne
Adelaide
Warrnambool
Mount Gambier
KANGAROO
Lincoln
Ceduna
SOUTH AUSTRALIA
Alice Springs
NORTHERN TERRITORY
Darwin
ARAFURA SEA
INDONESIA
BANDA SEA
TIMOR SEA
INDIAN OCEAN
Halls Creek
Broome
Roebourne
WESTERN AUSTRALIA
Wiluna
Laverton
Forrest
Kalgoorlie
Coolgardie
Esperance
Perth
Narrogin
Augusta
Albany
Bunbury
Geraldton
Hamelin Pool
Carnarvon
TASMANIA
Smithton
Hobart
800 KM 0
MANORAMA YEAR BOOK-1975

COUNTRIES OF THE WORLD

Note: Basic facts relating to each country is given according to the following pattern: N: The Official Name of the State A: Area P: Population C: Capital city with population in brackets T: Major towns other than the Capital, with their populations (The towns have been selected on the basis of population). R: Principal Religions L: Main Languages W: System of Weights and Measures M: Monetary Unit (Currency) with exchange rates of Pound Sterling (£ 1) and US Dollar ($ 1)

The population figures given are the latest available. Many of them are estimates. Weights and Measures fall into three divisions – the Imperial System (British), the Metric System and Local System, that is, the system peculiar to each country. The exchange rates given are those recognised by the International Monetary Fund (IMF) before the devaluations of 1971.

For, recent changes of administrative heads, see 'Heads of States' infra

AFGHANISTAN

N: Kingdom of Afghanistan A: 650,000 sq. km. P: (1969 est.) 15,944,275 C: Kabul (480,383) T: Herat (101,579) R: Moslem. L: Pakhto (Pashtu), Dari, Persian W: Metric and Local M: Afghani (200 =A £1 80 A = $1)

Afghanistan a land locked kingdom in Central Asia, is bounded by USSR to the north, Pakistan to the east and south and Iran to the west. Known originally as Ariana, then as Khorasan (the land of the Rising Sun), Afghanistan was formed as a seperate state by Ahmed Shah Durrani in A. D 1747. Modern Afghanistan emerged between 1884 and 1919. At the beginning of the present century, Nadir Shah established a new dynasty in Afghanistan. He was succeeded by his son Zahir Shah in 1933.

On July 18, 1973, General Mohammed Daud, who was Prime Minister (1953-63) took over power, abolished the monarchy, declared a republic and installed himself as President.

On Aug. 24, 1973, Zahir Shah, who was holidaying in Rome, with the royal family, announced his defacto abdication.

Agriculture remains the mainstay of the economy. Sheep-rearing is another main occupation and the chief exports are wool and skins. About one-fifth of the land is under cultivation. Farming is limited to the fertile valleys. The chief minerals are copper, lead, zinc, iron, silver, asbestos and oil.

ALBANIA

N: People's Republic of Albania A: 27.748 sq km. P: (1969) 2,108,000 C: Tirana (1971 figures) 180,000 R: Religion has been officially abolished; very small numbers are Christians L: Albanian (Tosk and Geg being the two main dialects) W: Metric M: Lek (12 L = £1 4.62 L = $1.)

Albania lies on the west coast of the Balkan peninsula in south east Europe It is bordered by Yugoslavia to the north and east, Greece to the south and the Adriatic and Ionian Seas to the east. The country is mainly mountainous The chief ports are Durazzo and Shengjin and the main towns Durres (80,000) and Vlora (50,351). The principal river is the Boyanis.

Albania was first established as an independent state in 1912, by a European conference which made Prince William of Weid the King. The King fled in 1914 During World War I Albania was variously occupied by many powers including Italy. Italy acknowledged Albanian independence in 1920. Albania became a republic in 1925 and a monarchy in 1928, when the President of the republic, Zog assumed the title of King. King Zog fled in 1939 when Italy annexed Albania During World War II the country remained under the Axis Powers. With the end of the war a provisional government under Gen. Enver Hoxha was established in 1945. In the general elections of 1945 the Communist swept the polls and Albania became a Communist Republic.

The Government of Albania is a Communist People's Democracy patterned after that of the Soviet Union. According to the constitution adopted by the People's Assembly in 1946 (and amended in 1950) the supreme governing body is the Presidium of the People's Assembly. Its President is the Head of the State. It assumes the functions of the People's Assembly when the latter (elected every four years) is not in session. It appoints the Council of Ministers. The Albanian Labour (Communist), Party works closely with the government and is the main policy making body.

All medical services are free. Religion has been officially banned from 1967. Formerly the population was predominantly Moslem (70 per cent) with 15 per cent Catholics in the north and 15 per cent Greek Orthodox Christians in the south.

More than 40 per cent of the land is farmland producing wheat, maize, sugar beet, cotton and tobacco and supporting a heavy livestock population mainly sheep and goats. The important minerals are coal, oil, chrome, copper and nickel. Industries include cotton textiles, woollen fabrics, leather goods, petrol, cement, sugar, beer and cigarettes.

ALGERIA

N: Democratic People's Republic of Algeria A; 2,381,743 sq. km. P: (1966 Census)* 12,101,994 C: Algiers (942,769) T: Oran (324,481), Constantine (254,744) R: Moslem L: French and Arabic W: Metric M: Algerian Dinar (11.70 D – £ 1 4.50 D—$ 1)

Algeria is an independent republic in North Africa and extends for 640 miles along the shores of the Mediterranean between Tunisia and Libya on the east and Morocco on the west. Mali and Niger are in the south. The plains lying along the coast are very fertile. The Atlas Mountains reaching to altitudes of some 7,000 ft. split the country into two.

Algeria became a part of the French Empire in 1842. It became an independent republic on July 3, 1962 The National Liberation Front, under Ferhat Abbas, formed the first independent government. Ferhat Abbas was overthrown by Ben Khedda, an extremist in 1961. In Sept. 1962, Ben Bella's party won the elections. Ben Bella became the Premier and subsequently President. On June 19, 1965 Col. Boumedienne, Minister of Defence and Chief of Army Staff, deposed Ben Bella and assumed control of the state as President of a Revolutionary Council.

The constitution was approved on Sept. 8, 1963 by popular referendum settidg up a presidential system. Since June 1965, the functions of the Presidency have been exercised by the Revolutionary Council.

The main agricultural products include wheat, barley, oats, corn, potatoes, artichokes, flax and tobacco. Fruits like dates, pomegranates and figs grow in abundance. Wine and olive oil are also produced. Cattle raising, however, is perhaps the most important occupation. Minerals include iron, zinc, lead, mercury, copper and antimony. The annual industrial production of the country is estimated at about 470 million dollars.

ANDORRA

N: Principality of Andorra A: 465 sq. km. P: (1971) 20,550 C: Andorra la Vella R: Christian L: Catalan W: Metric M: French Franc and Spanish Peseta.

The Principality of Andorra founded in 1278 lies in one of the valleys of Eastern Pyrenees, between France and Spain, about half way between Barcelona (Spain) and Toulouse (France).

Andorra, has no proper constitution and its international status is dubious. As an autonomous unit, Napolean granted it a republican constitution in 1806 But its autonomy was subject to the suzerainty of the president of France and the Bishop of Urgel in Spain The suzerainty, however, is exercised only in name, Andorra having to pay 960 francs to France and 460 pesetas to the Bishop of Urgel as tribute. The suzerains appoint permanent delegates in Andorra to represent them.

The government is carried on by a Council of 24 elected members. All persons above the age of 25 may vote. No political parties exist, but there are usually two factions in the Council—a liberal group leaning to France and a conservative one favouring Spain.

Andorra is an agricultural country. Cereals, potatoes and tobacco being the principal crops. Livestock is estimated at 25,000 sheep, 3,000 cattle and 1,000 horses. There is a milk farm outside the capital. Iron, lead, alum, stone and timber are the principal products, though tourism is the main source of income There is no income tax, death duty or customs.

Includes European population estimated at 80,000; omits an estimated 500,000 Algerians abroad.

ARGENTINA

N: Republic of Argentina A: 4,027.024 sq. km P: (1970 Census) 23,364,431 C: Buenos Aires (5,900,000) T: Cordoba (846,000), Rosario (751,000), La Plata (406,000) R. Christian L: Spanish W: Metric M: Peso Commercial Rate: 13.03P= £ 15 P = $1 Financial Rate 24.97 P = £1 9-58 P = $1.

Argentina lies at the tip of South America extending for some 2,300 miles from Bolivia to Cape Horn. Its maximum width is 930 miles. There are four distinct mountian groups in Argentina - the Andean, Central, Missionis and Southern. The Southern Andes contains beautiful lakes and provides excellent fishing. The highest peak in the Americas, Aconcagua is in Argentina East of the Andes are great plains and forests where wheat cultivation and cattle raising are carried on. Argentina has an excellent river system with the terminal in Rio de la Plata river

Originally discovered by Spanish explorers in 1515-16, Argentina remained under Spanish rule till 1810, when it became a republic. A democratic constitution was adopted in 1853. In 1946, Gen. Juan Peron established a dictatorship which lasted till 1955, when the armed forces took over the government. From 1955 to 1970, four regimes succeeded one another till Gen. Lanusse came to power in March, 1971.

Argentina is a Federal Republic with 22 states, the National Territory of Tierra del Fuego, Antarctica and South Atlantic Islands. The federal government has a separate executive, legislature and judiciary similar to that of USA. Executive power is vested in the President. The Congress has two houses, the senate consisting of 46 members and the Chamber of Deputies consisting of 192 members.

The mountains of Argentina abound in deposits of iron, coal, lead, copper, zinc, gold, silver and sulphur. Petroleum is also found in abundance. Meat-packing is the chief industry, with flour milling coming second. Agriculture and animal husbandry form important segments of the economy.

AUSTRALIA

N: The Commonwealth of Australia A: 2,967,909 sq miles P: (1970 sept. est) 12,800,000 (In 1968 the estimate of persons with 50 per cent or more aboriginal blood was 122,000) C: Canberra—Federal Capital (130,250) State Capitals-Sydney (2,780,310), Melbourne (2,475,300), Brisbane (853,000), Adelaide (825,400), Perth (663,000), Hobart (150,910), T: New Castle (346,970), Wollonggong (203,110) R: Christian L: English W: Imperial and Metric M: Australian Dollar (2 16 AD=£1 0.82 AD=$1).

Australia, variously known as 'The land of the golden fleece' and 'The land of the Kangaroo' is the world's largest island (?) and a continent. It is situated to the south-east Asia, and is surrounded by the Indian Ocean in the north, west and south and by the Pacific Ocean in the east. It has a unique assortment of flora and fauna, not found elsewhere in the world. The full blooded aboriginal population, numbering below 20,000 are primitive and nomadic. The boomerang was invented by these nomads.

Australia was discovered by Captain James Cook in 1770 He claimed the vast island for Britain. In about fifty years Australia became a British dependency and a settlement for British convicts. From a convict settlement Australia developed into a British colony. New South Wales was occupied in 1770, Victoria was formed in 1851, Queensland in 1859, Western Australia in 1892, and Tasmania in 1856. In 1901, the Australian colonies were federated into the Commonwealth of Australia, by an Act of Parliament. The federating States were six in number- New South Wales with its capital at Sydney, Victoria (capital Melbourne), Queensland (capital Brisbane), South Australia (capital Adelaide), Western Australia, (capital Perth) and Tasmania (capital Hobart). Two territories also form Part of the Commonwealth. Northern Territory, covers more than 520,000 sq, miles of which 94,025 sq. miles are reserved for aboriginals, This is now federal territory along with Canberra, the capital territory.

In 1911 the Commonwealth acquired from the State of New South Wales, the Canberra site for the federal capital. Queen Elizabeth II is the queen of Australia and is permanently represented by a Governor—General and a Governor in each of the States. The Federal Parliament consists of two houses, the Senate in which the States are equally represented and the House of Representatives, which is elected on the basis of population. The executive power is vested in the Governor-General, who is assisted by a Cabinet under a Prime Minister, responsible to the Federal Parliament.

The external territories of Australia are: Papua, Norfolk Island in the Pacific, the 27 Cocos (Ruling) Islands and Christmas Island in the Indian Ocean, Australian Antarctica, Heard Island and Mac Donald Islands, Coral sea Islands, Mac Quarie Island and Ashmore and Carbien Islands.

Wool is Australia's primary industry. Wheat is by far the most important agricultural crop, about half of which is exported. Gold, silver, lead, zinc and copper have long been exploited but recent discoveries of oil, natural gas, coal, nickel, iron ore and bauxite have changed the Australian economy. Manufacturing industries now account for 28 per cent of the GNP.

AUSTRIA

N: Republic of Austria A: 83,850 sq. km. P: (1971 Census) 7,443,809 C: Vienna (1,603,408) T: Graz (249,211), Linz (204,627), R: Christian L: German, with small Croat, Czech Slovenc speaking minorities W: Metric M: Schilling (60.30 Sch -£1 23 20 Soh=$1)

A republic of Central Europe, Austria is bounded by W. Germany, Switzerland and Liechtenstein in the west, Czechoslovakia and W. Germany in the north, Hungary in the east, and Italy and Yugoslavia in the south. Over 90 per cent of the country is mountainous.

Austria came under the rule of the Hapsburgs in 1278. Tyrol was added in 1363 and Bohemia and Hungary in 1526. Under the dual monarchy of Austria-Hungary, the country had an area of 261,259 sq. miles and a population of about 51 million. With the defeat of Austria-Hungary in the First World War, the Hapsburg Empire was dismembered and Austria became an independent republic. In 1939, Hitler annexed Austria and joined it to Germany. After the defeat of Germany in the Second World War, Austria once more became a republic In the 1971 elections, the Socialist Party came to power.

Austria has a bicameral federal parliament consisting of Nationalrat and Bundesrat Nationalrat (National Council) has 183 members, elected on universal adult suffrage, for four years. Bundesrat (Federal Council) has 54 members, elected by the federating States. Their term expires with the expiry of the terms of the provincial government, which elected them. The Provincial Assembly (Landtag) exercises the same functions in the State, as the Nationalrat in the federation. The President is the Head of the State and is elected directly by the people for a term of 6 years.

BAHRAIN

N: Emirate of Bahrain A: Total area (255 sq. miles) of which Bahrain Island alone covers about 217 sq. miles. P: (1972 est.) 225.000 C: Manama (88,785) T: Muharraq Town (37,732) R: Moslem L:Arabic and English.W:Metric M:Babrain Dinar (1.142 BD=£1 0.440 BD=$1).

Bahrain, which became an independent State on Aug. 15, 1971 is an Arab state comprising 33 small islands, in the Persian Gulf. Bahrain is the biggest of the islands and has lent its name to the whole archipelago.

Bahrain emerged into history between 3000 and 2000 BC, when its merchant vessels carried pearls, ivory, rare metals and precious stones between the Indus Valley in India and Sumeria in Mesopotamia. Umayyad Caliphs of Damascus first reduced the islands to submission They were followed by the Abbasid Caliphs of Baghdad. The islands again became free between the 10th and 16th centuries. The Portuguese occupied them in 1522. They were driven out by the Iranians, who in their turn were ousted by the Atabi Arabs in 1783. Though independent, the Atabi Arabs were frequently subjected to piratical attacks. Therefore, the ruling Sheik accepted British protection in 1861. Thus Bahrain became one of the Trucial States in the Persian Gulf. The British left in 1971 and Bahrain became an independent monarchy.

The traditional occupations of cattle-breeding, agriculture and fishing are still practised but many modern industries have also come up -clothing, soft drinks, plastics, boat-building and industrial gases Oil accounts for the lion's share of the State revenues—about nine million dinars Though Bahrain's production of crude oil is relatively small, compared to other Gulf countries, it has the second largest refinery in the Middle East.

The people enjoy a very high standard of life. Education is free upto the secondary level and heavily subsidised with scholarships at higher levels.

BANGLADESH

N: People's Republic of Bangladesh A: 55,126 sq. miles P: (1971 est) 61,823,000 C: Dacca (915,100) T: Chittagong (457,700), Khulna (403,400), Narayanganj (389,000) R: Moslem, with a small minority of Hindus L: Bengali, Bihary and Hindi W: Imperial system (pending the introduction of a metric system) M: Taka (18 97 T=£1 7.3T=$1).

Bangladesh came into existence as an independent state on Dec. 16, 1971, when the Pakistani army surrendered to the Indian Commander of the joint forces of the Indian army and Mukti Babini (Liberation Army of Bangladesh) at Dacca.

Bangladesh,comprising what is known as East Bengal, had always been part of India. When Pakistan was carved out of India in 1947, East Bengal went to Pakistan and was called East Pakistan. A movement for provincial autonomy for East Pakistan was started by the Awami League under Sheik Mujubir Rehman, which developed into a war of liberation and the Indo-Pakistan war in Dec. 1971. The war ended in 16 days with the surrender of the Pakistan army and Bangladesh emerged as the independent sovereign state.

A Constitution providing for a parliamentary democratic form of government, was approved by the Constituent Assembly of Bangladesh on Nov. 4, 1972. The Constitution came into force on Dec. 16, 1972, the anniversary of the liberation of Bangladesh.

Bangladesh is bounded on three sides by India—West Bengal on the north and west, Assam on the north and north-east and Tripura in the east. Burma lies to the south east, and constitutes the only non-Indian boundary of Bangladesh.

Bangladesh has a land and sea frontier of about 4,712 km. of which 280 km. is with Burma. The country's sea coast runs over 716 km.

The population of Bangladesh according to the 1961 Census was 50.84 millions (26,349,000 males and 24,491,000 females). The distribution of different religious groups was Muslims 80.43 per cent, Hindus including Scheduled Castes 18.45 per cent, Christians 0.29 per cent, Buddhists 0.74 per cent and others 0.09 per cent.

Bangladesh is fed by a number of rivers branching out from the Ganga Brahmaputra system. It is a land of heavy rainfall, no part recieving less than 50 inches annual rainfall, with some areas like Cox's Bazar and Sylhet registering 150 to 200 inches rainfall.

The economy is primarily agricultural. Out of a total area of 35.3 million acres 22.4 million (about 63 per cent) is under cultivation. Rice is the most important food crop, production amounting to over 10 million tons yearly. Bangladesh is the biggest producer of jute, in the world, commanding 80 per cent of the world's total production.

Industrially, Bangladesh is backward, Textiles, sugar factories, hosieries, aluminium works and jute mills comprise the bulk of industrial production in the State.

Fauna. Bangladesh possesses a great abundance of wild life, including big game which is largely concentrated in jungles. It is estimated that there are 200 species of mammals, 750 of birds, 150 of reptiles and 200 of marine and fresh water fish.

BARBADOS

N: Dominion of Barbados A: (166 sq. miles) P: (1970 Census) 240,000 C: Bridgetown (105,000) R: Christian L: English W: Imperial System M: East Caribbean dollar (4.80 ECD=£1 1 84 ECD=$1).

The island of Barbados, is the most easterly of the Caribbean islands, lying about 250 miles north east of the mainland of South America. It is included in the Windward Isle group and is surrounded by the Atlantic Ocean.

Barbados was claimed for England by Captain John Powell in 1605 and was first settled in 1627. It joined the West Indies Federation on its formation in 1958, remaining a member until the dissolution of the Federation in 1962. Barbados became fully self-governing within the Commonwealth on November 30, 1966.

It adopted Dominion status within the Commonwealth. The Queen is represented by a Governor General and executive power is in the hands of a Cabinet consisting of a Prime Minister and not less than five other ministers. Parliament consists of a Senate of 21 members, appointed by the Governor General, and an elected House of Assembly.

Agriculture and tourism dominate the economy of Barbados. Sugar, molasses and rum account for 90 per cent of exports.

BELGIUM

N: The Kingdom of Belgium A: 30,513 sq km. P: (1970) 9,690,991 C: Brussels (1,071,194) T: Antwerp (673,111), Brabant (2,177,975), L: Flemish, French and German W: Metric M: Belgian Franc (115 BF=£ 1 44 BF=$ 1)

Belgium, known as the Cockpit of Europe is bordered by the Netherlands in the north, W. Germany and Luxembourg in the east and France in the south.

Belgium, the land of the Belgai has a history going back to the days of Juilus Caesar. After the fall of Napoleon, Belgium became part of the Netherlands but became an independent monarchy in 1830. It was occupied during both the World Wars by Germany but regained its independence with the end of the wars. Belgium consists of nine provinces.

According to the constitution of 1831, Belgium is a "constitutional representative and hereditary monarchy". The head of the government is the King. The legislature consists of a Senate whose members are elected for four years, partly directly and partly indirectly, and a Chamber of Deputies whose members are also elected for four years by proportional representation. Universal adult suffrage is in force and voting is compulsory.

Belgium has been troubled since the end of the Second World War by the language qusetion. The French speaking Walloons and Dutch speaking Flemings have always been at logger heads. With the linguistic problem remaining unsettled Belgium continues to be a bilingual State.

Coal comprises the chief mineral wealth of the country. Important industries are mining, steel, glassware, diamond-cutting, food, beverages, fish, textiles and chemicals. Antwerp in Belgium is the world's most diamond trading centre The principal crops are oats, rye, wheat, potatoes, barley and sugar-beets.

BHUTAN

N: Kingdom of Bhutan A: (18,000 sq miles—6,000 sq. miles of forest). P: (1970 est.) 1,100,000 C: Thimphu (8,000) R: Buddhist and Hindu L: Dzongka and Nepali W: Local M: Indian Rupee and Tikchung valued at half Rupee (18 97 R = £1 7.28 R = $1)

Bhutan is a semi independent state in the Himalayas, with Tibet on the north, Assam on the east, West Bengal and Assam on the south and Sikkim on the west. It is 190 miles long from east to west with a maximum breadth of 90 miles.

In recent centuries Bhutan was bese by its neighbours in the south (British India) and by the Tibetans in the north. After a war in 1865 the British annexed part of southern Bhutan. In 1949 India returned the annexed lands to Bhutan and took over control of external affairs. After the assassination of the Prime Minister Jigme Dorji on April 5, 1964, his brother Lhendup Dorji, was appointed acting Prime Minister. But in November 1964 the King Jigme Dorji Wanchuk assumed direct rule. He died of heart failure on 21 July, 72 at Nairobi, Kenya. His son Jigme Singye Wanchook was crowned King on 24 July, 72.

The Government is monarchic but the King is advised by an assembly (Tsongdu) of 130 members. By a treaty signed with India on August 8, 1949, Bhutan receives a cash subsidy of Rs. 500,000 from India and enjoys transportation rights through India.

Agriculture is the chief occupation. The principal products are rice, Indian corn, millet, lac, wax, musk etc. India is providing all aid to modernise the economy of Bhutan.

BOLIVIA

N: Republic of Bolivia A: 1,098,600 sq. km. P: (1971 est.) 5,062,500 C: La Paz-Seat of Government (562,600), Sucre—Capital R: Christian L: Spanish W: Metric M: Peso (28.4 P = £1 11.8 P = $1)

Bolivia, a South American state, lies astride the Andes and has a great central plateau 12,000 ft. above sea level and is 500 miles long. Bolivia is bounded by Brazil in the north and north east, Paraguay in the east, Argentina in the south and Chile and Peru in the west. Lake Titicaca on the Peru-Bolivian border is the highest lake in the world on which steam boats ply (12,506 ft.). It is the largest inland lake in South America (3,200 sq. miles).

Originally part of the ancient Incan Empire, Bolivia was occupied by the Spanish in the 16th century. It remained under Spanish rule till 1825 when it became independent. Bolivia has been named after Simon Bolivar, the famous South American fighter for freedom. Bolivia, like most Latin American states has had a number of coups and countercoups. Since 1964, when General Ovando Candia ousted President Victor Paz Estenssoro and seized power, Bolivia already had six coups. The latest coup was staged on August 21, 1971, when the leftist President Juan Jose Torres, who came to power by a coup in October 1970 was himself driven out by the rightist army leader, Col. Hugo Banzer. Col. Banzer proclaimed himself President of Bolivia on August 22, 1971. He is the fiftyeighth President in 146 years.

Agriculture, the mainstay of the country engages 70 per cent of the population. Tin mining is the most important industry. Bolivia produces about 30,000 tons of tin, nearly 15 per cent of the world's total output. Antimony and tungsten are the next most important minerals. Crude oil is tapped at the rate of 35,000 barrels a day.

BOTSWANA

N: Republic of Botswana A: 222,000 sq. miles P: (1971 Census) 625,893 C: Gaborne (27,876) R: Tribal and Christian L: English and Tswana W: Imperial M: Rand (1.954 R=£1 0.75 R=$1)

The Republic of Botswana (formerly known as Bechuanaland) is located in Southern Africa, and is bounded by South Africa in the south, Namibia (South West Africa) in the west and Rhodesia in the north east. Botswana is a vast tableland much of it sand-veld. It is very sparsely populated and mainly suitable for cattle raising.

The British protectorates of Bechuanaland, Basutoland and Swaziland were often called the 'High Commission Territories' because until 1963 they were governed by a British High Commissioner. He was also British Ambassodor to South Africa and was responsible for the territories to the British colonial office. Bechuanaland became internally self-governing in March 1965 and attained full independence on Sept 30, 1966 under the name Botswana.

The legislative power of the Republic is vested in a parliament consisting of the President and the National Assembly acting after consultation in certain cases with the House of Chiefs Executive power is vested in the President.

Cattle industry is the most important economic activity. Beef is the main export. Asbestos, manganese, gold and silver are the leading mineral resources.

BRAZIL

N: Federative Republic of Brazil A: 8,511,965 sq km. P: (1970 Census) 93,215,301 C: Brasilia (546,015) T: Sao Paulo (5,978,977), Rio de Janeiro (4,315,746) R: Christian L: Portuguese W: Metric M. Cruzeiro (14.90 Cr=£1 5.731Cr=$1)

Brazil, the largest of the South American States, both in area and population has for its neighbours Venezuela, Colombia and the three Guyanas to the north, Peru and Bolivia to the west, and Paraguay, Argentina and Uruguay to the south. Brazil is dominated by the Amazon river which is navigable through the whole of its course through Brazil—some 2,093 miles. The majestic falls of Iguassu, one of the natural wonders of the world are on the border of Parana, one of the southern states of Brazil. The south central region of Brazil having a favourable climate, contains 45-per cent of the population and accounts for 75 per cent of the agricultural produce and 80 per cent of the industrial output.

Brazil was opened up as a Portuguese colony by Pedro Alvarez Cabral, Porуguese navigator. It remained a Portuguese colony till 1808 when the Portuguese royal family fleeing from Napoleon's armies, established its capital at Rio de Janeiro. Thereafter Brazil became a kingdom under Dom Joao VI. When Dom Joao returned to Portugal his son Pedro, stayed over in Brazil and proclaimed Brazil an independent kingdom in 1822. His son, Don Pedro II was driven away on November 15, 1889 by a popular revolution which established Brazil as an independent republic under the name United States of Brazil. Brasilia was made the new capital on April 21, 1960.

Under a new Constitution promulgated on Oct. 17, 1969 Brazil has a parliamentary form of government with a bicameral legislature, the Senate and the Chamber of Deputies Senators are elected for eight years and Deputies for four years. The President is elected for 5 years, but is not eligible for a second consecutive term. Brazil is divided into 21 States each with a Governor of its own and five federal territories, including the federal district of Brasilia. Like most South American States, Brazil has had frequent political turmoils. These political troubles have often rendered the constitution unworkable.

Brazil possesses vast deposits of mineral wealth—iron and monazite, gold, nickel, chrome, industrial diamonds, quartz, mica, tungsten, tantalite, coal and oil. Oil is a state monopoly. The hydro-electrical potential is estimated at more than 8 million kw. Cotton weaving is the most important industry and engages 25 per cent of the total labour force in the country. Brazil is the world's greatest coffee producer. Other crops are bananas, cotton, oranges, pineapples and corn. Cattle-raising and pig rearing are major occupations. Rice, cocoa, pinewood, beans and tea are among the major agricultural exports. The country has a monopoly of the kind of wax which is used for insulation and phonograph records.

BULGARIA

N: People's Republic of Bulgaria A: 110,912 sq. km. P: (1969) 8,514,900 C: Sofia (885,665), T: Plovdiv (252,491), Varna (230,475), Russe (153,559) R: Christian L: Bulgarian W: Metric M: Leva (2.80 L=£1 1.08 L=$1)

Bulgaria in south-east Europe, is bounded by the Black Sea on the east, Turkey and Greece in the south, Yugoslavia on the west and Romania on the north.

The Bulgars, Slavic people who settled in Bulgaria in the 7th century A D had embraced Christianity in the 9th century. In the 14th century the Turks conquered Bulgaria. By the 19th century the Bulgars revolted against the Turks and became an independent monarchy. After the Second World War, monarchy was abolished and Bulgaria became republic.

Under the constitution adopted in 1947, Bulgaria has a unicameral legislature—the National Assembly. The National Assembly is elected for four years and it elects the members of the Presidium and the premier. Actually the government is run by the Communist Party of Bulgaria.

The principal crops are wheat, rye, barley, oats, corn, potatoes and tobacco. A planned scheme for industrialisation is under way. Already 98 per cent of the industry, 95 per cent of agriculture and 99 percent of the retail trade are controlled by the State. About 85 per cent of Bulgaria's external trade is with the Communist bloc.

BURMA

N: Socialist Republic of the Union of Burma A: 261,228 sq-miles P: (1971 est). 28,201,000 C: Raagoon (1,854,159) T: Mandalay (401,633 , Moulmein (172,569), Bassein (136,429) R: Buddhist L: Burmese W: British System M: Kyat (13 94 K=£1 5.35K=$1).

A republic of south east Asia, Burma is on the Indo Chinese peninsula, bordered by Bangladesh, India, Tibet, China. Laos and Thailand, The country is watered by the Irrawady which forms one of the most fertile basins in all Asia and which is famous for rice, maize and other agricultural produce.

Originally, a part of British India, Burma became a separate unit of the British Commonwealth in April 1937. It became an independent country on January 4, 1948. The Union of Burma consists of Shan State, Karen, Kachin, Kayah, the Chin Hills District and the Arakan Hill Tracts. The Government of Premier U Nu, elected in 1960 was overthrown on March 2, 1962 by a military coup under Gen. Ne Win who dissolved the Parliament. A Revolutionary Council consisting of 18 army, navy and airforce officers were set up to rule the country. Gen. Ne Win serves as both President and Prime Minister All political parties except the Socialist Programme Party were dissolved in April, 1964. The State Councils of five states have been replaced by State Supreme Councils.

Burma is known as the "rice bowl of the Far East". The chief minerals are petroleum, lead, silver, tin, zinc, tungsten and gems. The rubies, sapphires and jade found in Burma are especially famous.

BURUNDI

N: Republic of Burundi A: (10,747 sq. miles P: (1970 est.) 3,340,000 C: Bujumbura (90,000) R: Tribal and Christian L: French and Kirundi (official languages) and Swahili W: Metric M: Franc Burundi (228 F=£1 87.5 F=$1).

The Republic of Burundi is a small state in Eastern Africa. It is bordered by the Democratic Republic of the Congo (in the west), Rwanda in the north and Tanzania in the east and south.

Burundi attained independence on July 1, 1962. Prior to independence, it formed part of the Belgian administered UN Trust Territory of Rwanda Urundi. On November 29, 1966 Premier Michel Micombero seized power, dissolved the government and appointed himself President of the Republic.

The population consists of Hutu of Bahutu tribesmen, Tutsi or Watutsi people and Twa or Batwa pygmies. The economy is entirely agricultural, manioc and sweet potato, being the important food crops and coffee and cotton, cash crops Coffee is the country's major export (85 per cent).

CAMEROON

N. Federal Republic of Cameroon A: 476,000 sq. km. (E. Cameroon 432,000 sq. km , W Cameroon 44,000 sq. km.) P: (1970 est.) 5,836,000 C: Yaounde—Capital of the Federation as well as of East Cameroon State (150,000) T: Douala 450,000), Tiko-Victoria-Bwa Capital of West Cameroon (50,000) R: Tribal and Christian and Moslem. Christians comprise about 33 per cent of the population and about 56,000 are Moslems. L: French and English W: Metric M: CFA Franc (See Central African Republic) (661 CFA Francs=£1 254 CFA Francs=$1).

Located in West Africa, Cameroon is bounded by the Gulf of Guinea (South Atlantic) and by Nigeria, Chad, the Central African Republic, Gabon and the Congo Republic. Douala is the main commercial centre and port.

Cameroon, originally part of the German colony Kamerun in W. Africa, passed under the French UN Trusteeship and became a republic in 1960. In 1961, British Cameroons were federated with Cameroon, forming the Federal Republic of Cameroon.

Cameroon has a central Government and two provincial governments—East Cameroon and West Cameroon. The President and Vice President are elected by direct universal suffrage. The President appoints the Cabinet.

The Federal Legislature has 50 members 40 from East and 10 from West Cameroon, elected by universal suffrage for five years.The State governments have a single legislative assembly also elected on universal suffrage for five years. The State Premiers are nominated by the President of the Republic.

Cameroon is mainly an agricultural country raising cocoa, palm oil, coffee, rubber, groundnuts, bananas and cotton. It has one of the highest per capita incomes in tropical Africa East Cameroon is industrially developed, aluminium and chemicals being the main industries.

CANADA

N: Dominion of Canada A: 3,851,809 sq. miles P: (1971 est.) 21,561,000 C: Ottawa (536,000) T:Montreal (2,570,000). Toronto (2,366,000) R: Christian L: English and French W: Imperial M: Canadian Dollar (2.60 CD = £ 1 1.00 CD = $1).

Canada is the second largest country in the world It occupies all of the North Americen continent north of the US except Alaska in the west and the small French island of St. Pierre and Miquelon. It is bounded in the north by the Arctic Ocean, Baffin Bay and the Davis Strait, in the north east and in the east by the Atlantic Ocean, in the south by the USA in the west by the Pacific Ocean and in the northwest by the US state of Alaska. Thirty per cent of the population speak French. There are about 231,000 Indians and 15,000 Eskimos.

Canada has a federal parliament, consisting of two Houses—House of Commons and Senate. The House of Commons comprises 265 members, elected by popular vote for five years. The Senate consists of 102 members appointed for life (75 years of age) by the Governor General. The Governor General is appointed by the British Sovereign on the recommendation of the Canadian Federal Government. The provinces are under Lt. Governors, appointed by the Governor General in Council and are assisted by provincial ministers, responsible to the provincial legislature. The provincial legislatures are unicameral, consisting of an elected Legislative Assembly.

In 1497, John Cabot in the service of King Henry VII of England landed near Newfoundland and claimed it for Britain. In 1534, Jacques Cartier, a French man landed further south and claimed the area for France Britian and France thus became rivals for the possession of the new colony. The Anglo French wars resulted in France losing its hold on Canada and Britain becoming the undisputed master. However, the French settlers formed a powerful element in the Canadian population and Britain found it necessary to protect its special interests. The Quebec Act of 1774, was intended to placate the French population The Act established French civil law throughout the then province of Quebec and guaranteed the free exercise of Roman Catholicism. The Constitution Act of 1791 divided Canada into two—the French speaking Lower Canada (Now Southern Quebec) and the English speaking Upper Canada (now Southern Ontario). The Act of Union, 1840 united the two Canadas into one State. In 1867 the British North America Act created the Dominion of Canada, a federal unit made up of Nova Scotia, New Brunswick, Lower Canada (Quebec) and Upper Canada (Ontario). Today the Dominion of Canada consists of 10 provinces—Newfoundland being the 10th province to be added to the federation on April 1, 1949 - and two territories. The federal units with their capitals are as follows Alberta (Edmonton), British Columbia (Victoria), Manitoba (Winnipeg), New Brunswick (Fredericton), Newfoundland (St. Johns'), Nova Scotia (Halifax), Ontario (Toronto), Prince Edward Island (Charlotte Town), Quebec (Quebec), Saskatchewan (Regina). Yukon Territory (Whitehorse), Northwest Territories (Yellow Knife).

From a primarily agricultural country famous for logging, fishing and fur, Canada has transformed itself into one of the leading industrial countries of the world. Automobile parts, the head export list, followed by wood pulp and timber. Wheat is still a major item of export. Canada's industrial structure has been built up mainly by foreign investments, especially USA. It is estimated that 50 per cent of Canada's 120 largest manufacturing companies are wholly owned or controlled by foreign companies. Canada is today, the world's largest producer of asbestos, silver, nickel, and zinc. It is rich in many other minerels, iron. copper, uranium, cobalt, platinum, lead and gold. It has vast reserves of oil and natural gas. Though Canada is ninth in the world in crudeoil production it is Canada's biggest dollarearning mineral.

CENTRAL AFRICAN REPUBLIC

N: Central African Republic A. 621,600 sq. km. P: (1968 Census) 2,255,536 C: Bangui (298,579) R: Christian and Tribal L: French (Official) and Sangho (National) W: Metric M: CFA Franc* (661F=£1 254F=$1)

The Central African Republic lies in the heart of equatorial Africa It is bounded by Chad to the north, Sudan to the east. People's Republic of the Congo and Zaire to the south and Cameroon to the west The population consists of over 80 ethnic groups of which the most important are Benda, Baya, Mandja, Oubangua, Sara and Ferti.

Formerly the territory of Oubangui Chare, in French Equatorial Africa. the country took its present name, when it became self governing in 1958. It became fully independent in 1960, as a member State of the French Community. The Republic was admitted to membership of the UN on 20th Sept. 1960. On January 1, 1966 Col Jean Bedel Bokassa, Chief of Staff of the Army ousted President David Dacko and seized control of the government. The new regime abolished the 1960 constitution and dissolved the National Assembly.

The present government is in the hands of a Revolutionary Council. A new constitution is to be drawn up.

Principal agricultural products are cotton, coffee and peanuts. Cotton leads in exports. Diamonds account for half the country's export earnings, Uranium mining is becoming increasingly important.

CHAD

N: Republic of Chad A: 1,269,100 sq. km. P: (1968 est.) 3,500,000 C: Fort Lamy (132,502) R: Moslem and Tribal L: French, Arabic and Tribal W: Metric M: CFA. Franc (See Central African Republic) 661 CFA Franc=£1 254 CFA=$1.

The Republic of Chad is bounded by Libya on the north, Sudan on the east, the Central African Republic on the south and Cameroon and Niger on the west.

Formerly a province of French Equatorial Africa, Chad became independent on August 11, 1960. It is a member State of the French Community. In 1962 a new constitution was adopted for a presidential type of regime.

The country's economy is entirely rural and is based on agriculture and animal husbandry. Cotton and meat are the main exports. Cattle, sheep and camels are raised

CHILE

N: Republic of Chile A: (286,39) sq. miles P: (1970 Census) 9,780,000 C: Santiago (2,586,212) T: Valparaiso (292,847) Concepcion (196,317) R: Christian L: Spanish W: Metric M: Escudo (70E=£1 28E=$1 .

The Republic of Chile, lies on the Pacific coast of South America, occupying the strip of land between Peru and Bolivia in the north to Cape Horn in the south It has a coast—line of 2,900 miles with an average breadth of 100 miles. Chile has overseas possessions, so to speak, having an interest in Tierra del Fuecogo Island. It has complete control over the Eastern Islands—Salay Gomez, San Ambrosio and San Felix and Juan Fernandez Islands - all in the South Pacific.

Originally a Spanish colony, Chile became independent between 1810 and 1818. It is one of the very few South American States that have had stable governments.

Executive power is vested in the President, who is elected by popular vote for six years. The legislative body is the National Congress, consisting of a Senate of 50 members and a Chamber of Deputies of 147 members.

There are many large dairy farms. Vineyards cover 250,000 acres. Though wheat and other cereals are cultivated, Chile has to import about one-third of its food. It is the world's fourth largest producer and the second largest exporter of copper There are important deposits of nitrate, gold, silver and iron ore. Oil production provides about half the oil required by the country. Chile nationalised the USA owned copper mines in 1964

---

* There is common currency with the Congo (Brazzaville), Gabon and Chad. The currency unit is the Franc of the African Financial Community (Franc CFA).

CHINA

N: The People's Republic of China A: 9,561,000 sq. km, P: 697,600,000 (official figure announced in 1972 by the govt.) C: Peking (7,500,000) T: Shanghai (10,800,000), Tientsin (4,000,000), Shenyang (Mukden) (2,420,000), Wuhan (2,230,000), Canton (2,200,000), Chungking (2,160,000) Harbin (1,590,000), Luta (1,590,000) Nanking (1,450,000) R: Confucian, Taoist, Buddhist, Moslem, Christian (Muslims number about 10 million and Christians around 4 million) L: Chinese (Mandarin), Mongol, Turki and Tibetan (provincial languages) W: Local M: Yuan 5.9 y=£1 2 45 y=$1 1.67 y=1 Soviet Rouble.

The most populous country in the world and the third largest in area, China is bounded by the USSR, Mongolia, N. Korea, N. Vietnam, Laos, Burma, India, Bhutan, Nepal, Pakistan and Afghanistan. China is made up of 21 provinces, 5 autonomous regions of nationalities (Inner Mongolia, Sinkiang, Uighur, Kwangsi-Chuang Ningsia-Hui, (Tibet) and three municipalities, Peking, Shanghai and Tientsin, under direct government administration.

Szechuan, with a population of just 68 million remains the most populous province, followed by Shantung with 55.5 million and Honan with 50.3 million. These official figures are very much lower than most foreign estimates.

China is essentially an agricultural country. The main crops are rice, other grains, tea, tobacco, sugarcane, jute and hemp The main forest produce are teak and ting oil. Among principal industries are cotton and woollen mills, iron, leather and electrical equipment, The chief minerals are coal, gold, copper, lead, zinc, silver, tungsten, mercury, antimony and tin. China like Russia follows a planned economy. The first Five Year Plan ran from 1953 to 1957 and the second from 1958 to 1962. By 1962, long term planning gave way to annual plans. A third Five Year Plan was started in 1966.

One of the oldest countries in the world, China was for many centuries a monarchy. The revolutionary movement led by Dr. Sun Yat Sen, overthrew the monarchy and established China as a republic on January 1, 1912. In 1931 Japan occupied Manchuria and in 1933 the border province of Johol. By 1937 Japanese armies had advanced far into the country and regular war broke out between China and Japan. With the defeat of Japan in the Second World War, China got back all the lost territories. A new constitution was proclaimed in 1947. But in the meantime, the Koumintang (Chiang Kai-shek's party) and the Communists, who had jointly stood together against Japan, had fallen out. In 1948 the Communists took over Manchuria and by 1950 the whole of China passed under Communist rule. Chiang Kai-shek and what was left of his party moved on to Taiwan, 110 miles off the mainland where they formed the Nationalist Republic of China. The People's Republic of China was proclaimed in Peking on September 21, 1949. Since November 1965 a "Great Proletarian Cultural Revolution" has been under way. Its aim was to enforce the ideology of Chairman Mao Tse-tung. It has led to many changes in the party and government hierarchies.

The National People's Congress, elected for four years on the basis of one Deputy for every 100,000 persons is the highest legislative authority in the State. The Standing Committee of the Congress is a permanent body. It convenes the Congress, conducts the elections interprets the laws, promulgates decrees and supervises the work of the government. The executive power is vested in the State Council consisting of a premier, deputy premiers and ministers.

On Oct. 26, 1971, China was admitted as a member of the UN and as one of the five permanent members of the Security Council, with the right to veto. Communist China thus displaced Nationalist China or Taiwan, in the United Nations.

China is a nuclear power well advanced in space technology. It launched its first earth satellite in April, 1970.

COLOMBIA

N: Republic of Colombia A: 1,138,914 sq. km. P: (1971 est.) 21,793,800 C: Bogota (2,663,000), T: Medellin (1,147,000), Cali (968,900), R: Christian, Jewish minority L: Spanish W: Metric M: Peso (54. 75 P =£1 20 45 P=$1)

The Republic of Colombia situated in the extreme north west of South America extends up to the Isthmus of Panama, with the Caribbean Sea on the north and the Pacific Ocean on the west. It is bounded on the north east by Venezuela, on the east by Brazil, and on the south by Peru and Ecuador. Bogota, the capital founded in 1538, is situated in the Andes, 8,660 ft. high.

Colombia was once part of the South American Spanish Empire. In 1819, Simon Bolivar leading a revolt against Spain, established Greater Colombia. Greater Colombia split up into different states. In 1829—30 Venezuela and Ecuador became independent states. New Granada and Confederation Granada withdrew from Greater Colombia later. The Republic of Colombia including Panama became a separate state, under a constitution dated August 5, 1886. Panama became an independent republic on November 3, 1903. From 1950—57 General Royas Pinilla ruled as dictator. From 1957 democratic government was re-established in Colombia.

The Legislative authority is the Congress, consisting of Senate and the House of Representatives. Members of both Houses are elected for 4 years, on a population basis. Executive power is vested in the President, who is elected on adult suffrage for four years. Under a 1959 amendment to the Constitution, the President must alternatively be a member of the Liberal and Conservative parties.

Colombia's main product is coffee, which accounts for 80 per cent of the country's exports. Other products are tobacco, cotton, sugar, wheat and bananas. The counrry is a big producer of petroleum and the world's leading producer of emeralds (about 90 per cent) It is one of the few countries where plantinum is found. Other minerals are gold, silver, copper, lead and mercury.

DEMOCRATIC REPUBLIC OF THE CONGO

(See Zaire)

REPUBLIC OF CONGO

N: People's Republic of the Congo* A: 349,650 sq. km. P: (1971 est.) one million C: Brazzaville (200,000), T: Pointe Noire (100,000) R: Tribal, Christian and Moslem L: French, Lingala and Kongo W: Metric M: CFA Franc (661 F=£1 254F=$1) (See Central African Republic).

The People's Republic of the Congo is bounded on the north by Cameroon and the Central African Republic, east and south by Zaire and the west by the Republic of Gabon.

Formerly part of the French Equatorial Africa and known as French Middle Congo, the Republic of the Congo became autonomous within the French Community in 1958 and fully independent in Aug. 1960. Ever since independence, Congo had experienced only troubles. In 1968 the National Council of the Revolution (CNR) led by Capt. Ngoubi took over the government and abrogated the 1963 Constitution. In 1969 a radical reorganisation took place and a new constitution was promulgated as on Dec. 30, 1969. Under the new constitution, the Congolese Worker's party (PCT) is the ultimate political authority in the State The party has been getting support both from Russia and china. The Chairman of the Central Committee of the PCT is the President of the Republic and the Head of the State

Chief agricultural products are palm-oil, kernels, peanuts and sugar. Diamonds are mined and form a major item of export. Potash is another important mineral.' Main exports are timber, diamonds, palm oil, sugar and peanuts (groundnuts).

COSTA RICA

N: Republic of Costa Rica A: 50,900 sq km. P: 1,685,750 C: San Jose (201,117 R: Christian L: Spanish W: Metric M: Colon (22.55 C=£1 8 60 C=$1)

The Republic of Costa Rica is a Central American state. It lies between Nicaragua and Panama The Caribbean Sea is in the north and Pacific Ocean is in the south.

For nearly three centuries Costa Rica formed part of the Spanish American dominion. In 1821, this conutry joined in the war of independence. From 1824 to 1839 it was a part of the confederation of Central America The constitution currently in force was adopted on November 8, 1949

Executive power is vested in the President assisted by two Vice-Presidents and a cabinet. The President is elected for a four year term. The legislative organ is the unicameral National Assembly of 57 members elected for four years. Election is based on universal suffrage. Voting is compulsory for all citizens who are 20 years of age or above.

The economy is mainly agricultural. Coffee is the most important product, accounting for about half the exports. Bananas, cocoa, honey, cattle, and recently sugar, are other items of export. Rice, corn and beans are produced mainly for home consumption. Sulphur, limestone and bauxite are the chief minerals. Industry is mainly small scale, textiles, leather goods, chemicals and furniture.

---

* There were two African States both named Congo, in the first instance. One of them, the Democratic Republic of the Congo, changed its name to Zaire. Congo (Brazzaville) is now the only State that takes the name Congo and is conveniently referred to as the Congo.

CUBA

N: Republic of Cuba A: 110,921 sq.km. P: (1970 Census) 8,553,395 C: Havana (1,755,360) T: Santiago de Cuba (249,600), Camguey (170,500), Guantanamo (131,400) R: Christian L: Spanish W: Officially the Metric System is in force, but the US system is widely used. M: Peso (2 55 P= £1 1 Peso=$1).

Cuba is the largest island in the Caribbean Sea, among the Greater Antilles group. Its neighbours are USA, Mexico, Jamaica and Haiti. The Bahama Islands are in the north.

Columbus discovered Cuba in 1492. Following the discovery, the Spaniards occupied the island and ruled it for four centuries. After the Spanish American war of 1898, Cuba became an independent republic, but under US protection. On May 20, 1902 an autonomous government was inaugurated with an elected President and a legislature of two houses. In 1934, Batista Y Zaldwar, an army sergeant overthrew the government and put up his own men in the government In 1940 he assumed power as President himself.

In 1959, General Batista the dictatorial President was overthrown by rebel forces led by Dr. Fidel Castro. Fidel Castro took over power in 1959. He dissolved the Congress and established a totalitarian government on the Communist pattern. No elections have been held since.

Cuba's economy is mainly dependent on tobacco and sugar. Cuba is the largest producer of sugar in the world. Sugar accounts for 85 per cent of Cuban exports. Tobacco is the second largest crop. Cattle, poultry and fishing have become important in recent years. Cuba is rich in nickel deposists Copper, chromite and manganese are also found. The important industries are sugar, molasses, syrups, brandy, rum, cigarettes, sponges and dairy products. Cuba has large forests of mahogany, cedar, ebony and dye-woods.

CYPRUS

N: Republic of Cyprus A: 3,572 sq. miles P: (1970 est.) 633,000—Greeks 518,000, Turks 115,000 C: Nicosia (115,000) T: Limassol (51,500) R: Christian and Moslem L: Mordern Greek and Turkish W: Imperial, Metric and local M: Cyprus pound (1 CP=£1 0.385 CP=$1)

The Republic of Cyprus is the third largest island (after Sicily and Sardinia) in the Mediterranean Sea, about 44 miles south of Turkey, and 65 miles west of Syria.

Cyprus became a Crown colony of Britain in 1925. British rule was opposed both by the Greek and Turkish factions.

The Greeks demanded union with Greece, called *Enosis*. The Turks opposed the movement. In February 1959, the conflict between Greeks and Turks was brought to a close. The two factions agreed to an independent Cyprus with a Greek as President, a Turk as Vice-President and a 70:30 representation for Greeks and Turks in the legislature. Archbishop of Cyprus, Makarios III, was elected the first President in December, 1959. The constitution was approved in April, 1960. Serious fighting broke out between Greek and Turkish Cypriots in late 1963. In April 1964 a United Nations peace-keeping force was set up and a UN mediator appointed.

President Makarios was ousted in a military coup on July 15, 1974. Nikos Sampson assumed Presidency on July 15; and on July 23 Glafkos Clerides succeeded him.

Although Cyprus has derived its name from copper, for which the island was famous in ancient days, the country is essentially agricultural. About 30 per cent of the land is under cultivation. The chief crops are wheat, barley, fruits, olive and cotton Minerals include cupreous and iron pyrites, and asbestos. Copper and gypsum account for two thirds of the exports.

CZECHOSLOVAKIA

N: Czechoslovak Socialist Republic A: 127,869.55 sq km P: (1969) 14,406772–Czechs, 9,841,805 Slovaks 4,564,967 C: Prague (1,081,608), T: Brno (337,673) Bratislava (288,042), R: Christian L: Czech and Slovak. W: Metric M: Koruna (Kcs) 17.28 Kcs = £ 1 6.63 Kcs = $1

A socialist republic landlocked in Central Europe, Czechoslovakia lies between Poland, USSR, Hungary, Austria and Germany (West and East). The State is composed of two main population groups; Czechs (about 65 per cent) and Slovaks (about 29 per cent).

Czechoslovakia has been under Communist domination since 1948. As a socialist republic it has a Soviet-type constitution, nationalised industry and collectivised agriculture. Effective control of the entire governmental apparatus resides in the Central Committee of the Czechoslovak Communist Party. In January 1968 Alexander Dubcek succeeded Antonin Novotny as Party Secretary. He has since been removed from office and Gustav Husak put in his place.

According to the Constitutional law adopted by the National Assembly on 27 Oct, 1968, the Czechoslovak Socialist Republic became on Jan. 1, 1969 a federal state of two nations of equal rights—the Czechs and the Slovaks The Czechs and the Slovaks form two republics within the federation, each with its own government. The Supreme body is the Federal Assembly for a five year term. The Federal Assembly consist of two Houses—the House of the People and the House of Nations. The President elected by the Federal Assembly appoints the national government, headed by a Prime Minister.

DAHOMEY

N: Republic of Dahomey A: 113,048 sq. km. P: (1969 est.) 2,645,000 C: Porto Novo (74,000) T: Cotonou (120,000) R: Tribal, Christian and Moslem L: French and Tribal dialects W: Metric M: CFA Franc (See Central African Republic)

A republic of West Africa, Dahomey is located north of the Gulf of Guinea and is bounded by Togo, Upper Volta, Niger and Nigeria. The Majority of people follow tribal religions. Christians form about 15 per cent and Moslems 13 per cent of the population. The official language is French but tribal languages continue in vogue.

Formerly, one of the provinces of French West Africa, Dahomey became a self governing republic within the French Community in Dec. 1958 and an independent state on Aug. 1, 1960. The country had been plagued by coups and counter coups. A constitution was adopted by referundum in 1968 but it remained a dead letter Elections were held in 1968 and 1970, only to be annulled later. A Charter of 'fundamental law' was announced in May 1970 under which a Presidental Council of three becomes the supreme organ of the State. The Chairman of the Council is the Head of the State and Chairmanship rotates among the members every two years. The Council will rule until fresh elections are held and a new constitution drawn up.

Dahomey's principal products are palm oil, kernels, peanuts, cotton, coffee and tobacco.

DENMARK

N: Kingdom of Denmark A: 43,069 sq. km. P: (1971 est.) 4,950,598 C: Copenhagen (805,331) T: Aarhus (238,138), Odense (165,520) R: Christian L: Danish W: Metric M: Krone (Kr) 18.19 Kr=£1 7.00 Kr=$1)

Denmark occupies the peninsula of Jutland in North Europe, between the North Sea on the west and the Baltic Sea on the east. The kingdom of Denmark includes the islands of Zealand, Furen and Bornhom and 480 smaller islands between the North Sea and the Baltic. Outlying possessions are Greenland and the Faroe Islands in the North Atlantic.

Denmark figured in European history between the 9th and 11th century, when the Danes raided Western Europe and Britain. It was frequently at war with surrounding powers—Britain, Germany, Norway and Sweden. Denmark's period of expansion lasted till the end of the fifteenth century, when it began to lose ground to the burgeoning German and Swedish kingdoms

Denmark is a constitutional monarchy, the King and the Parliament (Folketing) jointly holding legislative powers. Under the constitution of 1953, Denmark has a unicameral legisalture of 179 members elected for four years on a system of proportional representation. Two members are elected from the Faroe islands and two from Greenland.

More than 70 per cent of the land is under cultivations and employs roughly 25 per cent of the population. Denmark exports butter, cheese and bacon. Fisheries form one of the major occupations Ship building, machinery of different types, textiles, iron and steelware acccount for a major portion of industry. Denmark is famous for its co-operative institutions. The first co-operative society in Denmark was established in 1866. Denmark's merchant fleet has 360 vessels of more than 2,000,000 gross tons

Danish Merchant Marine consists of 35 steamers and 3,198 motor vessels with 3,413,855 gross tonnage

DOMINICAN REPUBLIC

N: The Dominican Republic A: 48,442 sq. km. P: (1970 est.) 4,011,589 C: Santo Domingo (671,402) T: Santiago (155,151) R: Christian L: Spanish W: Metric system is officially in force but the Imperial system is often used. M: Dominican Republic Peso (2.55 RD-£1 1RD=$1)

The Dominican Republic occupies the eastern two-thirds of Hispaniola, the second largest island of the Greater Antilles. Haiti which occupies the western one-third of the island forms the western boundary of the Dominican Republic. Atlantic borders it in the north and the Caribbean in the south.

Columbus discovered this island in 1942. From then until 1821 the Spaniards ruled over this country. The western part of the island, Haiti, was later occupied and colonised by the French. In 1844 Dominican Republic became independent. From 1963 to 1970 political confusion prevailed in the country leading to frequent change of governments. In 1966 a new consittution was adopted but the struggle for power continued. With the re-election of Dr Balaguer as President and the formation of a new National Congress in 1970, matters appear to have settled down.

The constitution provides for a President and a Vice President who are elected by direct popular vote for four years and a National Congress consisting of a Senate and a Chamber of Deputies, whose members are elected for a four-year term.

The country is predominantly agricultural. The most important crops are sugarcane and coffee Various minerals are found, principal among which are gold and copper.

ECUADOR

N: Republic of Ecuador A: 281,341 sq. km excluding eastern provinces for which no figures are available P: (1970 est) 6,177,127 C: Quito (528,094) T: Guayaquil (794,301) R: Christian L: Spanish and Indian and tribal dialects W: Metric M: Sucre 25 S=$ 1.

Ecuador lies on the northern Pacific coast of South America. It is bounded on the north by Colombia, on the east and south by Peru and on the west by Pacific Ocean. Two ranges of the Andes cross the country, from north to south, dividing it in to three natural regions, coastal, highlands and the orient. Guayaquil is the chief seaport and airport. The Galapagos Islands belong to Ecuador.

Ecuador was part of the great Inca Empire, which the Spanish conquistadors destroyed in 1533. In 1822 Ecuador became free and joined the federation of Colombia—Ecuador, Colombia, Panama and Venezuela—under the leadership of Simon Bolivar. In 1830, the federation was dissolved and Ecuador became an independent state. Its first constitution was drawn up in 1945. From 1961 to 1971, there was absolute political confusion, one leader giving way to another and one regime following another. In 1967, a new constitution was promulgated In Feb. 1972 the Commander in Chief of the Army, Gen. Rodriguez deposed President Ibarra and took over the government.

The constitution of 1967 provides for a President and a Vice President who are elected by direct popular vote for four years and a National Congress consisting of a Senate, whose members are elected for two-year terms. Ecuador is likely to revert to the 1945 Constitution, with the re-establishment of democratic government.

The economy is dominated by three commodities, bananas, coffee and cocoa. Ecuador is the world's largest producer of bananas.

Silver ore is now the chief mineral product. The production of petroleum is increasing. There are large deposits of copper, iron, coal and lead. The so-called 'Panama' hats made of Toquilla straw are made in Ecuador. The country is also the chief source for balsa wood which is half as heavy as cork but very strong.

EGYPT

N: Arab Republic of Egypt A: 1,002,000 sq km. P: (1970 est.) 33,329,000 C: Cairo (4,219,853) T: Alexandria (1,801,056), Port Said (282,977), Suez (264,098) R: Moslem and Christian L: Arabic W: Metric M: Egyptian Pound (1 1 EP-£1 0.423 EP=$1)

Egypt, traditionally known as the Gift of the Nile occupies north east Africa and is bounded by the Gulf of Aqaba, Israel, Sudan, Libya, the Mediterranean Sea and the Red Sea The United Arab Republic was formed on Feb. 1. 1958, under the leadership of Gamal Abdul Nasser of Egypt. The Union originally comprised Egypt and Syria and was intended to embrace all the Arab States from the Atlantic to the Persian Gulf. Syria left the Union in 1961. In 1971 Egypt, Libya and Syria formed a new Federation of Arab republics Egypt, until then known as the United Arab Republic, changed its name to the Arab Republic of Egypt.

Egypt has one of the oldest civillzations in the world, its recorded history going back to 4000 BC. Around 3200 BC Upper and Lower Egypt were united into a single Kingdom under the Pharaohs. Alexander conquered Egypt in 332 BC.

Thereafter a number of foreign powers have occupied Egypt—Rome, Omayyad Caliphs, Ottoman Turks and the British. Islam was introduced into Egypt during the Omayyad conquest in A D 7th century. The Ottoman Turks were represented in Egypt by the hereditary viceroys called

Khedives. Egypt became a British protectorate under the Khedives. In 1922 it became an independent monarchy. The monarchy was overthrown by a military coup under Gen. Neguib in 1952. But the General was ousted by Col Nasser in 1954. Nasser was elected President in 1956. Egypt precipitated a war with Israel in May 1967 and being defeated, she lost the territories on the eastern side of the Suez Canal (See Israel).

Under the constitution approved by referendum in Sept. 1971 Egypt is a democratic socialist state. A programme of socialism is being actively implemented. All banks and insurance companies have been nationalised and most of the industrial and trading concerns. Land is being re-distributed among the poor peasants.

The highest authority is the President. He is assisted by the First Vice President and various Vice-Presidents. The Executive Council consists of a Prime Minister, Dy Prime Minister and Ministers.

The main agricultural area is Lower Egypt which covers the delta of the Nile. The chief crops are cereals, vegetables, cotton, sugar and fruits of various kinds. The dams covering the Nile waters are among the largest in the world. Aswan at the First Cataract on the Nile is 176 ft. high and creates a reservoir 230 miles long. A variety of minerals is found in Egypt, principally phosphate rock and petroleum. Others are magnesium, talc, gypsum, coal, alum and sulphur. Principal exports are cotton, rice, mineral products, textiles, refrigerators, tyres, cement and electrical instruments.

EL SALVADOR

N: Republic of El Salvador A: 20,935 sq. km. P: (1970) 3,533,628 C: San Salvador (358,913) R: Christian L: Spanish W: Metric M: Colon (6.55 C=£1 2.33C=$1).

El Salvador is bounded on the north west by Guatemala, on the north and east by Honduras and on the south by the Pacific Ocean

El Salvador became independent in 1821 A new constitution was adopted in 1962. The legislative power is vested in the Legislative Assembly of 52 members elected by direct vote every two years. The President is elected for five years

The country is predominantly agricultural. The principal crop is coffee, which provides half the exports. Other products are cotton, maize and sugar. Fisheries are being developed and figure prominantly in the export list. Industry is growing. The country is a member of the American Common Market.

EQUATORIAL GUINEA

N: Republic of Equatorial Guinea A: 28,051 sq. km P:250,000 C:Santa Isabel (In Fernanda Poo) (37,185) R: Christian L: Spanish Fang, Combe, Bujeba, Bubi, Ibo and other tribal dialects, W: Metric M: Peseta (171.7P=£1 66 P=$1)

Equatorial Guinea, formerly Spanish Guinea, comprlses the islands of Fernando Poo, Corisco, Great Elobey, Small Elobey and Annobon and the mainland territory of Rio Muni on the west coast of Africa.

Fernando Poo was discovered by a Portuguese sailor who named it Formosa. In 1778, the King of Portugal gave the island away to the Spanish King who owned the mainland, Rio Muni (Spanish Guinea). Both the territories became independent as a united country on October 12, 1968 under the name Equatorial Guinea

The President is elected for a 5-year term. He nominates a Vice-President The National Assembly is a unicameral body consisting of 35 members elected for a 5-year term

The island of Fernando Poo is mostly mountainous and coffee is cultivated upto 3,000 ft. and cocoa upto 2,000 ft. There are also forests of ebony, mahogany and oak Main products of Rio Muni are cocoa, coffee and timber.

ETHIOPIA

N: Empire of Ethiopia A:1,221900 sq. km including Eritrea P: (1969 70 est.) 24,700,000 C: Addis Ababa (644,200) T: Asmara-Capital of Eritrea (190,500) R: Christian, Moslem and Tribal L: Amharic (official language), English and Arabic W: Metric M: Ethiopian Dollar (6 0 ED=£1 2.3 ED=$1).

Ethiopia is a mountainous country in North East Africa, having access to the Red Sea, through the province of Eritrea, which was federated with Ethiopia in 1952.

Ethiopia is an unusual country, a mixture of old-world feudalism and modern democracy. The tall slender and brown-complexioned Amharas who inhabit the mist-shrouded highlands dominate the empire. They form about 25 per cent of the population. The highlands plunge abruptly down to scorching deserts in the interior and to the Red Sea in the east This desert land is inhabited by Gallas, Somalis, Afars and other groups, who are predominantly Muslim. These have been eternally at war with Amharas for control of the area.

The independent Ethiopian Coptic Christian Church is the strongest force in the country. The religion reflects many Jewish traditions and rituals. The Emperor describes himself as the 'Lion of Judah' and claims descent from Solomon, through his legendary seduction of the Queen of Sheba

Ethiopia is one of the most ancient countries of the world with a colourful history. It is one of the few surviving monarchies. Italy occupied Eritrea, then part of Ethiopia in 1880. In 1936 Mussolini completed the conquest of Ethiopia and added it to the Italian empire. In 1941, Ethiopia was liberated. In November 1962, Ethiopia was proclaimed a unitary State, thereby ending the federal arrangement established on September 15, 1952 under which the former Italian colony of Eritrea was joined to Ethiopia and granted internal autonomy.

Under the constitution of 1955, the Parliament consisted of the Chamber of Deputies, elected by universal suffrage, and the Senate, whose members were appointed by the Emperor. The Emperor retained veto power over legislation passed by the Parliament.

The Ethiopian armed forces by slow deliberate steps had been extending their hold on the country for some time. They gradually stripped the emperor of his powers.

The Armed Forces on Sep 12, 1974 deposed Emperor Haile Selassie and announced establishment of a provisional military administration. The 82 year old emperor and all members of the imperial family were detained The deposition of the emperor means the virtual end of the world's most ancient monarchy which traced its origin to Solomon and the Queen of Sheba.

FIJI

N: Fiji A: (7,055 sq. miles) P: 1971 est.) 531,000 C: Suva (60,000) R: Christian and Hindu L: English W: Imperial M: * Fijian dollar (2 F=£1 0 86 F= $1).

Fiji consists of about 320 islands, lying 1,100 miles north of New Zealand. The largest of the islands Viti Levu constituting more than half of the total land area of Fiji islands is the seat of the capital, Suva. Fiji lies on the main route between Australia, New Zealand and North America and is the centre of communications in south west Pacific.

Some of the islands—Vanua Levu, Taveuni and others were first discovered by the Dutch navigator Tasman in 1643. Captain James Cook and other British seamen subsequently discovered other islands. In 1804, the first European settlement was established at Levika. The European settlers were followed by missionaries who converted the natives to Christianity. In 1874 the islands were annexed to Britain. From 1879, indentured Indian labour was imported into the islands to work on Europen sugar plantations Practically all the incoming Indian workers settled permanently in the islands The Indians now form 50 per cent of the population. Melanesians, the original inhabitants make up 43 per cent, the rest (7 per cent) being made up of Europeans, Chinese and others Institutions of self-government for Fiji were started in 1904, with a European dominated elected council In 1963, both Indians and Fijians were given elective representation On October 10, 1970 Britain granted independence to Fiji.

Fiji has a bicameral legislature consisting of a Senate of 22 members and a House of Representatives of 52 members Half the Senate members are appointed for six years and the other half for three years. The House of Representatives is elected for five years. The Head of the State is the Queen, represented by a Governor General.

Fiji is a famous tourist centre Its main products are agricultural. Sugar and coconuts form 90 per cent of the total exports. Mining is limited. Gold, copper and bauxite are at present exploited.

FINLAND

N: Republic of Finland A: 337,932 sq km P: (1970 est) 4,679,000 C: Helsinki (517,000) T: Tampere (156, 380) R: Christian L: Finnish and Swedish (both official languages) W: Metric M: Markka (10.58 mk=£1 4 07 mk=$1)-

The Republic of Finland is bordered on the north by Norway, on the west by Sweden and the Gulf of Bothaia, on the south by the Gulf of Finland and on the east by the USSR. Aland islands, numbering 300, with a total area of 572 sq miles

---

* Fiji converted to decimal currency on 13-1-69 at the rate of $ 2 Fiji=£1 Fiji.

are administered by Finland as a separate Department.

Finland is a Baltic State, which once formed part of the Russian Empire. In 1917, it became an independent republic In 1939 the Soviet Union invaded Finland and annexed some 17,000 sq. m. of Finnish territory In 1941, taking advantage of the German invasion of Russia, Finland tried to take back its lost territories. But with Russia emerging triumphant, Finland had to cede more territories and to pay a heavy indemnity. The Russo-Finnish relations are now stabilised by a number of treaties with Russia.

The President is chosen for six years by an electoral college of 300 members who are elected by popular vote. The President appoints the Cabinet. There is a single legislative chamber--the Eduskunta—of 200 members who are elected on a system of proportional representation.

Finland's economy is based on conifer forests which cover 72 per cent of the land. Paper and pulp industry is highly developed and represents more than 50 per cent of the exports. Other industries are shipbuilding, metals, textiles, leather and chemicals Finland has a fairly big fleet of merchant marine with a gross tonnage of 1,371,000 1970)

FRANCE

N: Republic of France A: 543,998 sq km. P: 1971 est 51,030,000 C: Paris (2,607,625)* T: Marseilles (893,771) Lyons (535,000) Toulouse (380,340) Nice (325,400), Bordeaux (270,996), Nantes (265,009), Strasbourg (254,038), Saint Etienne (216,020) Le Haire (200,940) R: Christian L. French W: Metric M: Franc 13.30 F=£1 5.12 F-$1

France lies between three big countries-Spain, Germany and Italy and the lesser States of Switzerland, Belgium and Luxembourg The North Atlantic Ocean (Bay of Biscay) lies to the west and the English Channel to the north, while the Mediterranean Sea bounds the south. The island of Corsica--the birth place of Napoleon—lying in the Mediterranean off the west coast of Itlay and north of the island of Sardinia, forms an integral part of France. France has four major rivers, the Seine, the Loire, the Garonne and the Rhone, with waterways totalling 8,200 miles, of which canals comprise a little over 3,000 miles.

Once a grand monarchy, The French Revolution (1789 1793) made France a republic. The first Republic was followed by the first Empire under Napoleon (1804-1814); a monarchy (1814 1848); the Second Republic (1848-1852); the Second Empire (1852—1870); the Third Republic (1871-1948); the Fourth Republic (1948 - 1958);and the Fifth Republic and the French Community in 1958. Gen. Charles de Gaulle was elected the first President of the fifth Republic on December 21, 1958. After his re-election to the Presidency in December 1965, de Gaulle formed the government of his second seven-year term on January 8, 1966. Georges Pompidou was elected President in June 1969 following de Gaulle's resignation. Pompidou continued the Gaullist traditions and policy.

The new constitution headed by the President provides for a bicameral legislature, the Senate and the National Assembly. The President is assisted by an executive council comprising the Premier, heads of states and cabinet members. The President is elected for seven years by an electoral college and has the power to appoint the Premier, to dissolve the legislature and order new elections, to call for referendum on specific issues and to assume full powers in a national emergency

France, agriculturally is a country of small farms, producing wheat, sugar beets, rye, barley, oats, potatoes, grapes, fruits and nuts. The country is rich in mineral deposits The coal deposits of Pas de Calais and Lorraine, the iron deposits in eastern France and the bauxite deposits in central France are among the richest in the world, Other minerals are lignite, pyrites, asphalt, rock-salt and potash salts Among manufactured products, the most important are chemicals silk, and cotton textiles, automobile, aircraft, ships, precision instruments, electronic equipments, perfumes and wines. France is the most important vinery in the world and produces as much as one billion gallons a year. Highly esteemed wines like Bordeaux, Champagne and Burgundy are named after provinces and regions in France, where they are mostly produced.

GABON

N: Republic of Gabon A: 267,000 sq. km. P: (1971 est) 752,295 C: Libreville (105,080) R: Christian and Tribal L: French and Bantu dialects W: Metric. M: CFA Franc (661 F-£1 254 F-$1)

The Gabon Republic is situated on the western coast of Africa. It is bounded by Equatorial Guinea, Cameroon, the Congo Republic and the Atlantic Ocean.

---

* Greater Paris (8,196,746)

Formerly a province of French Equatorial Africa, Gabon proclaimed independence on August 17, 1960. Its first President Leon M'ba died in November 1967 and was succeeded by the Vice President, Albert Bongo.

The head of state and head of government is the Presedent, elected by universal suffrage for a 7 year term. The unicameral legislature—the National Assembly—is composed of 47 members, elected by universal suffrage for a five-year term.

The economy, hitherto largely dependent on forestry, is now dominated by mining. The manganese deposits at Moanda in the south is one of the world's richest deposits. Crude oil production is already the fifth highest in Africa. Uranium and gold are also mined.

GAMBIA

N: The Gambia A: 4,261 sq. miles P: (1971 est) 378,730 C: Bathurst 36,570) R: Moslem, Christian and Tribal L: English, Mandinka and Woloff W: Imperial and Metric M: Dalasi (5 D=£1 1.92 D=$1.

Gambia is a narrow strip of land in West Africa, extending inland from the Atlantic Occean for about 30 miles on either side of the Gambia River and completely surrounded by the territory of Senegal. Nearly half the inhabitants belong to the Mandingo tribe

Formerly a British colony and protectorate, Gambia became an independent State within the Commonwealth on February 18, 1965 and a Republican State in Nov. 1970.

The President is the Head of the state and the government The House of Representatives, elected for five years consists of 32 members (elected on adult suffrage), four chiefs (elected by the Chiefs in Assembly, and three nominated members without vote.

Peanuts are the main crop, along with rice and palm kernels. Textiles and clothing are significant items of Gambia's imports.

EAST GERMANY

N: German Democratic Republic A: 108,178 sq. km. P: (1970) 17,056,983 C: Berlin 1,085,441) T: Leipzig (584,365) Dresden (501,508), Karl-Marx-Stadt (299,312), R: Christian L: German W: Metric M: D D Mark (10 M=£1 3.92M =$1.)

The German Democratic Republic (East Germany) is bounded on the north by the Baltic Sea, west and south by West Germany, southeast by Czechoslovakia and east by Poland along the line of the rivers Odor and Neisse.

When Germany surrendered to the Allies in 1945 the country was divided into four zones of Allied occupation. The northern section of East Prussia with about 14 per cent of the population and 24 per cent of the area of the former Reich came under Russian occupation In 1949, when the Federal Republic of Germany,was established in West Germany, the German Democratic Republic was proclaimed in East Germany on Oct. 7, 1949 In 1955 the State signed a peace treaty with Soviet Russia It has been a member of the COMECON since its foundation In 1964, it signed a twenty-year treaty of friendship and mutual assistance with Russia

The government is that of a people's democracy on the Soviet pattern. All citizens of 18 years and over have the right to vote representatives to the People's Chamber (Volkskammer) who in turn elect the Presidium, the Council of State and its Chairman, the Head of the State. (Also see West Germany)

Important crops of East Germany are wheat, rye, barley, oats and potatoes Farming is organised on State sponsored co operative basis The only natural power source is lignite brown coal, which supplies 90 per cent of the basic energy. Industries are highly developed -machines, chemicals, heavy engineering and ship-building. Special stress is laid on quality products like optics, electronics and precision tools The Leipzig trade fairs are well known throughout the world. Out of 11,564 industrial enterprises in 1970, 2,437 were State owned, 3,184 private owned, 5,632 joint State and private owned and 311 co-operatives

WEST GERMANY

N: Federal Republic of Germany A: 248,573 sq. km P: (1969) 61,195,000 C: Bonn (299,400) T: W. Berlin (2,134,300), Hamburg 1,817,100) Munich (1,326,300), Cologne (866,308), Essen (704,769), Dusseldorf (680,800), Frankfurt am Main (660,410), Dortmund (648,883), Stuttgart 628,400), Bremen (607,200), Hanover (517,800), Nureinburg (477,108), R: Christian L: German W: Metric M: Deutsche Mark (8.31 DM=£1 3.20 DM=$1)

The Federal Republic of Germany (West Germany) lies in the heart of Europe. Its neighbours to the west are

Netherlands, Belgium, Luxembourg and France, to the south, Switzerland and Austria, to the east Czechoslovakia and East Germany and to the north Denmark.

It was Bismark, Chancellor of Prussia who laid the foundation of the German Empire. In 1867, he formed the North German Federation with Prussia as the dominant member. In 1871, Germany defeated France and the King of Prussia was formally proclaimed the German Emperor. The German Empire reached its zenith before World War I With her defeat in the first World War, Germany lost all her overseas colonies and a good deal of her European territories In 1919, what was left of Germany was formed into a republic under the Weimar Constitution In 1933, Hitler, the leader of the Nazi party became Chancellor of Germany, with Von Hindenberg as President. After the death of Von Hindenberg, Hitler became the Fuehrer (leader) combining in himself the Presidency and the Chancellorship Hitler followed a policy of dictatorship at home and conquests abroad. He attacked Poland on September 1, 1939 and precipitated the Second World War. After the defeat of Germany, the erstwhile German territory was divided into two occupation areas, Russia occupying East Germany, and USA, Britain and France occupying West Germany. The city of Berlin was also divided into West Berlin (USA and Britain) and East Berlin (Russia). West Germany (Federal Republic of Germany) came into being on May 23, 1949 in accordance with the constitution drawn up by a Consultative Assembly. The German Federal Republic consists of 10 states (Lander). West Berlin is also a State of the Federal Republic.

The Berlin question had for long remained an intractable problem for the Allies US, France, Britain and Russia and for the two Germanys themselves. W. Berlin, that is, that part of Berlin which went to W Germany, is really an enclave, surrounded on all sides by East German Territory including East Berlin. The question of passage to and from or through W Berlin naturally raised a lot of difficulties, bickering and resentment in both Germanys In 1971 after the talks between the parties concerned, it was agreed that there would be unimpeded access from W. Germany to W. Berlin and from W. Berlin to East Berlin and other East German territories.

The Head of State is the President, who is elected for 5 years by the Federal Assembly, convened for the purpose. Parliament has two chambers The Bundestag (Lower House) consists of 496 voting members from the Republic and 22 non-voting members from West Berlin. The Bundesrat (Upper House) represents the State comprising the Federation and has 41 voting members from the States and four non-voting members from West Berlin. The Chancellor is elected by a majority vote of the Bundestag. Both Houses of Parliament have a duration of four years

West Germany showed a phenomenal economic growth during post-war years with industrial production increasing by 276 per cent over the 1936 level Since the currency reform in 1948 the economy of W. Germany has been completely recast. Today it is the second largest trading country in the world. Its oil refineries have an annual capacity of more than ten million and five hundred thousand tons.

GHANA

N: The Republic of Ghana A: 92,100 sq. miles P: (1970 Census) 8,545,561 C: Accra (633,900) R: Christian, Moslem and Tribal L: English (official language) and eight major national languages, W: Imperial M: Cedi (3.34 C=£1 1.28 C=$1)

Ghana, named after an earlier African state along the river Niger (AD 800 1076) is composed of the former British Gold Coast Colony with its outlying territories and British Togoland in Western Africa

Ghana became an independent republic within the British Commonwealth on July 1, 1960. The constitution of the republic provided for a President and a National Assembly, both elected every five years by popular vote. The President is both head of the state and head of the government On September 7, 1962 the National Assembly approved a motion making Kwame Nkrumah the first President, president for life On February 1, 1964 two constitutional amendments were approved in a referendum. The first made President Nkrumah's Convention People's Party, the only legal party in Ghana The second gave the President power to remove any judge from the Supreme Court.

On February 24, 1966, the Ghanaian army supported by the police seized control of the government during the absence of President Nkrumah who was on a trip to Communist China and North Vietnam. Leaders of the coup dismissed President Nkrumah and his cabinet. They set up a seven-man National Liberation Council composed of army and police officers.

Dr. Kofi Busia, the head of the new government who took over power from the National Liberation Council was ousted on January 13, 1972, by a military coup under Lt. Col. I. K. Achampong Dr. Busia, like Nkrumah was at that time away from the country in London. The coup leaders, calling themselves the National Redemption Council, withdrew the Constitution, dissolved the Parliament and banned all political parties. Dr. Nkrumah died in exile, while in London, on April 27, 1972.

Ghnna is primarily an agricultural country. It is the world's largest producer of cocoa, which constitutes its biggest export item. Other cash crops include coconuts, plam oil, coffee and kola nuts The country is rich in minerals including manganese, gold and diamonds.

GREECE

N: Kingdom of Greece A: 131,944 sq. km. P: (1971 Census) 8,745,084 C: Athens (867,023) T: Salonika (345 799). R: Christian L: Modern Greek, including *Kapheresoua*, the formal language and *demotiki*, the commonly spoken language W: Metric M: Drachmae (76.50 D=£1 30 D=$1)

Greece occupies the southern part of the Balkan peninsula in the Mediterranean with the Ionian Sea on the west and the Aegean Sea on the east Albania, Yugoslavia and Bulgaria lie to the north of Greece, and Turkey to the north east.

In ancient times, Greece was the seat of democracy, learning and culture. The achievements of the Greeks in political administration, philosophy, oratory, history, poetry, sculpture and architecture form the foundations of modern European culture. Politically independent till the first century B C, the Greek states succumbed to Roman might in the latter half of the first century B C. With the division of the Roman Empire, Greece became subject to the Eastern Roman Empire at Byzantium and later to the Ottoman Turks In 1830, Greece once more became an independent monarchic state. In 1925 it became a republic but went back to monarchy in 1935. In the Second World War, Greece was first attacked by Italy; but the attack was repulsed. The German armies came next and overran Greece. With the end of the Second World War, Greece again became independent and the Greek King, then in exile was recalled after a plebiscite.

On April 21, 1967 the army took over power in Greece with the backing of King Constantine and arrested the Prime Minister and political leaders. King Constantine supported the army in staging the coup, merely to strengthen his hands against his bitter political foe, former Prime Minister George Papandreou. But the subsequent military coup which took place on December 14 1967 deprived King Constantine of his royal authority. He had to flee to Rome Col. George Papadapoulos took over as Prime Minister, promised a plebiscite and quick return to democratic rule. The promise was not redeemed, though elections were held in 1970 and 1971 for a Legislative Advisory Committee. Papadapoulos managed to keep control of state affairs by Cabinet reshuffles in June 1970, Aug. 1971 and Jan. 1972.

With effect from June 1, 1973 monarchy has been abolished (by decree) and Greece made a Presidential Parliamentary Republic, with George Papadopoulos as provisional President. He continues also as the Premier.

Greece is primarily an agricultural country though only one-fourth of the land is cultivable. The chief crops are wheat, rye, barley, oats, cotton, tobacco, olives, citrus fruits, raisins and figs. Sheep constitute the major live stock item Cattle, pigs, horses and mules are olso raised. The major minerals found in Greece are bauxite, magnesite, iron ore, copper, zinc and lead. Chief exports are tobacco, olives and olive oil, figs, wine, brandy, citrus fruits, cotton and leather. In merchant shipping, Greece owns a surprisingly big tonnage with 19,250,000 gross tons. Tourism is Greece's biggest industry, which brings in an annual income of nearly 300 million dollars.

GUATEMALA

N: The Republic of Guatemala A: 108,889 sq. km. P: (1969 est.) 5,030,000 C: Guatemala City (680,357) R: Christian L: Spanish, (official language) and Indian dialects W: Metric M: Quetzal (2.6 Q=£1 1 Q=$1).

A republic of Central America, Guatemala is bounded by Mexico, British Honduras, Honduras, El Salvador, the Caribbean Sea and the Pacific Ocean It has a long Pacific coastline.

Guatemala was a Spanish colony for about three centuries. The Republic was established in 1839. Guatemala is the third largest of the five Central American republics and has the largest population. In 1954 President Arbenz Guzman was overthrown by a military junta, its leader

Castillo Armas being installed as president. He was assassinated in 1957. Ydigoras Fuentes was elected President in 1958. He was deposed by the armed forces in 1963 and a government charter was promulgated in place of the constitution. Cesar Mendez Montenegro was elected president in 1966. A lot of terrorist activities broke out in the country and the right wing Gen. Carlos Arana Osoria was elected President in 1970. In Sept. 1970, Osoria proclaimed a national emergency, in view of the turbulent unrest in the country, Even though the emergency was terminated in 1971; violence continued.

Guatemala's fourth constitution came into effect on May 5, 1966. The constitution provides for a President and Vice-President, elected by popular vote for a 4-year term The unicameral Congress consists of 55 members elected by popular vote.

The soil is very fertile. Agriculture is the most important occupation. The principal crop is coffee. Other important export items are bananas, cotton, gum, sugar and maize.

GUINEA

N: The Republic of Guinea A: 245,587 sq km. P: (1970 est.) 4,000,000 C: Conakry (172,500) R: Moslem and Tribal L: French, (official language) and 8 national languages W: Metric M: Guinean Franc (246.8= $1)

Guinea, a former French overseas territory in West Africa is bounded by Portuguese Guinea, Senegal, Mali, the Ivory Coast, Liberia and Sierra Leone.

Uunder the constitution of the Fifth French) Republic, Guinea voted for secession and proclaimed itself an independent republic on October 2, 1958. Guinea adopted its first constitution on 12th November 1958, which provided for the election of a President every seven years and for the government to be carried on by the President, with the assistance of a cabinet.

The National Assembly is composed of 75 elected members. The Democratic Party is the only political party in Guinea and there is no opposition in the Assembly. Tribal chieftaincies have been absolished and the government is highly centralised. Under President Sekow Toure who was re-elected for a second seven year term in 1968, the country has followed a policy of nationalisation and State control of trade and industry.

The chief agricultural products are palmnuts, bananas, coffee, groundnuts and millet. It exports coffee, honey, bananas, palm kernels, iron and aluminium ore. Guinea has probably the world's largest deposit of bauxite. Other minerals are gold, diamonds and iron ore.

GUYANA

N: The Republic of Guyana A: 83,000 sq. miles P: (1970 est.) 721,098 C: Georgetown (195,000) R: Christian, Hindu, Moslem L: English (official language), Hindi, Urdu, other American dialects W: English M: Guyanese dollar (5 21 GD =£1 2 GD=$ 1

Guyana (former British Guiana) lies on the north east coast of South America. It is bounded on the east by Surinam, on the west by Brazil and Venezuela, and on the south by Brazil.

Guyana was discovered in 1499 by Spanish sailors. It became a British possession in 1814 and an independent sovereign state within the Commonwealth of Nations on May 26, 1966. The constitution as amended in 1970 provides for a President, who is Head of State He is assisted by a council of ministers under a Prime Minister, responsible to the National Assembly. The National Assembly consists of 53 members elected by a system of proportional representation for four years.

The economy is based on agriculture Sugar and rice are the main exports There are considerable deposits of bauxite, gold and diamonds. Dense tropical forests cover much of the land.

HAITI

N: The Republic of Haiti A: 27,750 sq km. P: (1970 est). 4,870,000 C: Port au-Prince (200,000) R: Christian and Voodoo L: French (official language); a Creole dialect is generally spoken W: Metric M: Gourde (13.06 G=£1 5.23 G=$1)

Haiti is part of the West Indies island known as Hispaniola in the Pacific, lying between Cuba on the west and Puerto Rico on the east. Negroes form the majority of the population, the rest being mulattos descended from former French settlers and slaves.

Haiti was first discsvered by Columbus in 1492. It became a French colony from 1677. It proclaimed itself an independent republic in 1804 and continued to be so till 1820. Following a period of political violence, the United States occupied the country and restored order. The occupation was terminated in 1934. Nevertheless, political instability still prevailed in Haiti. A new constitution promulgated in 1957 provided for a presidential government. On April 8, 1961, President Francois Duvalier dissolved the Parliament.

On May 25, 1964, the National Assembly approved a new constitution to replace the 1957 constitution. This new constitution, endorsed in a popular referendum on June 14, 1964 and formally inaugurated by the National Assembly on June 21, 1964, granted a life tenure of the presidency to President Duvalier In April 1971 'Papa Doc' Duvalier died and his son Jean-Claude Duvalier became President for life The President's militia, originally known as 'Tontons Macoutes' and 'Leopards' actually runs the government

Coffee is the chief agricultural product, others being sisal, cotton, raw sugar, bananas, cocoa and tobacco Rice is grown for home consumption Rum and other spirits are distilled from molasses and exported. Valuable wood of different varieties also constitutes a major item of export Minerals, most of which remain undeveloped are copper, gold, silver, iron, antimony, tin, sulphur, coal, nickel and gypsum

HONDURAS

N: The Republic of Honduras A: 112,088 sq. km. P: (1969 est.) 2,500,000 C: Tegucigalpa 210,000 R: Christian L: Spanish W: Metric, (official) USA measures are in general use. Old Spanish measures are used locally M: Lempira (5.2 L=£1 2 L=$1)

Honduras is a republic of Central America lying between Nicaragua, El Salvador and Guatemala. It has a long northern coastline on the Caribbean side and a narrow southern outlet to the Pacific.

Originally a Spanish colony, Honduras became independent in 1821. On October 3, 1963, the constitutional government of President Ramon Villeda Morales was overthrown by a *coup d'etat* and replaced by a regime controlled by the military.

On March 23, 1965 the Constituent Assembly elected Col. Oswaldo Lopez Arellano, the Head of the Military Government since October 3, 1963, as President of the Republic. In March 1971, Ramon Erneste Cruz was elected President for six years.

The chief crop is bananas which constitutes 65 per cent of the country's exports. Cotton, maize and tobacco are also grown. Timber is abundant and cattle raising is a major occupation. The mineral wealth of the country consisting of gold, silver, copper, lead, zinc, antimony and coal remains largely unexploited

HUNGARY

N. People's Republic of Hungary A: 235,919 sq. km. P: (1971) 10,347,000 C: Budapest (1,940,000) R: Christian L: Hungarian (Magyar) W: Metric M: Forint (28.18 F=£1 11.74 F=$1)

Hungary, a communist state in Central Europe lies between Czechoslovakia, USSR, Romania and Austria. The eastern half of Hungary is mainly a great fertile plain, the Alford. The west and north are hilly

Hungary had a stormy history being successively overrun by Huns, Magyars, Turks, Hungarians and Austrians. In 1867 Hungary became part of the Austro Hungarian empire. Austria-Hungary having been defeated in the First World War, Hungary became an independent republic in 1918. In 1920, monarchy was restored with Admiral Nicholas Horthy as regent. Hungary joined Germany in the Second World War. The Germans removed Admiral Horthy and put Nazi supporters in power. Russian troops captured most of the country in 1945. In 1946 Hungary declared itself an independent republic. The republic was ended by Soviet Russia in 1947. A Soviet type constitution was adopted by Hungary in 1949, under which power was vested in a Parliament of 308 representatives and a presidium In 1956 Hungary revolted against Soviet domination The revolt was crushed by Soviet Russia and the Communist Party in Hungary was restored to power under Janos Kadar.

According to the constitution of 1949, the highest organ of State power is the single chamber Parliament (National Assembly) which elects the Presidential Council consisting of the President who is the head of state, two Vice-Presidents and 17 members. The Council exercises power when parliament is not in session The principal executive organ is the Council of Ministers headed by a Premier.

Hungary was formerly an agricultural country, but since the last World War, industry has come to acoount for more than half of its total economy. Hungary exports engineering products, machine tools, motor vehicles, and electrical and electronic goods. Chief imports are iron ore, coal, crude oil and consumer goods. More than 97 per cent of agricultural land is collectivised Vineyards occupy around 500,000 acres.

ICELAND

N: Republic of Iceland A: 102,846 sq. km. P: (1970) 204,344 C: Reykjavik (81,561) R: Christian L: Icelandic W: Metric M: Krona (222.50 Kr=£1 87.25 Kr=$1).

Iceland is an island close to the Arctic Circle in the North Atlantic The Norwegian Sea is on the eastern side of Iceland. The land is not sunk under perpetual ice, as its name suggests. The warm Gulf Stream makes the winters mild. During the short cool summers, there is perpetual daylight for many weeks—making it an island of the the Midnight Sun (See also Midnight Sun). The island has apparently been formed by volcanic eruption and has many geysers and hot springs. Natural hot water from Iceland's hot springs are pumped into towns, providing heat for offices and residences Iceland has over 200 volcanoes, many of them still active. Mt. Hekla is the most famous volcano It erupted twice in this century, 1947 and 1970. The ocean surrounding Iceland has many submarine volcanoes. One such volcano created the Island of Surtsey (Island of the Black Giant) in 1963. In 1972 another island Geirfuglasker suddenly vanished, obviously because of submarine volcanic eruption. (See also Volcanoes. p 119).

The people of Iceland are the descendants of the dare devil Vikings of Norway, the first of whom settled in Iceland in AD 874. The Vikings were adventurous sea farers, who are reputed to have first discovered Greenland (AD 982) and North America (AD 1000). Iceland became an independent republic around AD 930 and continued to be independent till the 13th century Then it became part of Norway, and along with Norway passed under Danish rule When Norway was separated from Denmark, Iceland remained under Denmark as an autonomous province. In 1941 the Althing (Parliament) voted for complete independence and a republic was formed on June 17, 1944.

The president of the republic is elected by popular vote for four years. Parliament has 60 members elected by popular vote for four years. Members of the Althing elect one third of their numbers to form the Upper House (20 members), the remaining 40 members form the Lower House.

Much of the land in Iceland is uncultivated, the total cultivated area coming only to 65,000 acres Potatoes and turnips are the major crops Fishing industry is highly developed and forms the mainstay of Iceland's economy. This industry is so important that Iceland in 1955 unilaterally extended its fishery limits to 12 miles to eliminate foreign competition. But foreign fishing fleets still competed and Iceland was obliged to extend the limits to 50 miles from September 1, 1972.

INDIA

(See separate Section)

INDONESIA

N: Republic of Indonesia A: 1,904,345 sq. km. P: (1971 Census) 122,864,000 C: Djakarta (5,849,000) T: Bandung (1,152,000) Surabaja (1,269,000 R: Moslem, Christian L: Bahasa Indonesian W: Metric M: Rupiah (1081 Rp=£1 378.00 Rp=$1)

Indonesia formerly known as Netherlands East Indies is an archipelago of over 3,000 islands, the largest being Java, Sumatra, Kalimantan, (Indonesian Borneo) Celebes and Irian Barat (West New Guinea). The capital is Djakarta, the former city of Batavia, on the island of Java The population consists of various groups—Achinese, Bataks. Menangkabaus, Javanese, Sundanese, Madurese, Balinese, Sasaks, Menadonese, Buginese, Dayaks and Papuans.

Following upon Japanese military occupation of Indonesia, the nationalists proclaimed an independent republic on August 17, 1945. The Netherlands government refused to recognise the independent republic and an intermittent war lasting four years ensued between Netherlands and Nationalist Indonesia. On December 27, 1949 the Netherlands government recognised the new republic In July 1950 the original constitution of the new republic was amended as a centralised unitarian state under the name of the Republic of Indonesia In 1959, owing to economic and political unrest Dr Sukarno, the President restored the original constitution of 1945, which gave him unrestricted powers as President Premier. He announced a policy of "Guided Democracy". The Parliament was suspended on March 5, 1960 and a communist backed new parliament was set up. Following a period of great unrest and internal disorder, President Sukarno agreed on March 11, 1966 to hand over effective governing power to the anti-Communist military leadership headed by General Suharto. The military leaders agreed to allow Sukarno to remain as a figurehead in the posts of President and Premier. On July 5, 1966 the People's Consultative Congress divested President Sukarno of his title as President for life.

On March 12, 1967, the Provisional People's Consultative Congress approved a resolution according to which Pressdent Sukarno was replaced by General Suharto as Acting President. On March 28, 1968 Gen. Suharto was elected as the actual President of Indonesia.

One of the world's richest countries in natural resources, Indonesia has vast supplies of tin, oil and coal and fairly big deposits of bauxite,manganese, copper, nickel, gold and silver Its crude oil production is estimated at 25,310,000 metric tons annually It is second only to Malaysia in tin production Agriculture is the main occupation of the people and engages 80 per cent of the population. Crops include rice, tobacco, coffee, rubber, pepper, kapok, coconuts and tea.

IRAN

N: Iran A: (627,000 sq. miles, P: (1969 est) 28,386,000 C: Teheran (2,719,730 T: Isfahan (424.045), Meshed (409,616). R: Moslem L: Persian (Farsi , Kurdish and Turkish dialects W: Metric and local M: Rial (197.5 R=£1 76 R=$1).

Iran (Persia occupies the great Iranian plateau in South Western Asia. It is surrounded by Iraq and Turkey in the west, USSR in the north, Afghanistan and Pakistan in the east and Persian Gulf in the south west. The southern coast of the Caspian Sea forms part of Iran's northern boundary. The Iranians are Aryans, belonging to the same stock as the Aryans of India.

Iran, formerly known as Persia changed its name to "Iran" in 1935. It is a country of great antiquity, celebrated alike for its culture and military valour. The first Persian Empire was founded by Cyrus in 549 BC. His successor Darius I invaded Greece and was defeated at Marathon. Xerxes, who followed Darius attempted another conquest of Greece. Though he defeated the Greeks at Thermopylae and occupied Athens, his navy was routed in the battle of Salamis (480 BC). His army was defeated later at Plataea (479 BC). Alexander of Macedon avenged the Persian attacks on Greece by defeating Darius III at Issus in 33 BC and conquering the whole of Persia. Subsequently, Persia was ruled by the Seleucids, the Parthians and the Sassanians. The Sassanian Arabs carried Islam into Persia and for several centuries, the Caliphate in Persia was the pivotal point of Islamic religion and politics The old Caliphate was transformed into an absolute monarchy under a Shah in AD 1502.

In 1960 the Shah sanctioned a constitution which provided for a Majlis (National Assembly) elected for four years and a Senate of 60 members, 30 of whom are elected and 30 nominated by the Shah. The Acts of the legislature require the signature of the Shah. The Shah may dissolove the legislature e at any time. The executive power is vested with a cabinet, which acts in the name of the Shah.

Agriculture is the major occupation of the people. The chief agricultural products are wheat, barley, rice, fruits, wool, raw silk, sugar beets and cotton Sturgeon fish (from which caviar is obtained) in the Caspian Sea provides an important source of income. Iran is one of the biggest oil producing regions in the East Othe, mineral resources include copper, lead, manganese, nickel, chromite, zinc and cobalt. Emeralds and other gems are found in Khorassan and Kerman. Persian carpets made on handlooms and farmous the world over, are produced in Kerman, Qum, Tabriz, Arak, Meeshed, Isfahan and Kashan.

IRAQ

N: Republic of Iraq A: 438,446 sq.km P: (1970) 9,465,800 C: Baghdad (1,884,151) T: Mosul (343,121) Basra (420,145) R: Moslem L: Arabic (official language , Kurdish, Turkish and Persian (spoken languages) W: Metric M: Iraqi Dinar (0 859 ID=£1 0.327 ID=$1).

Iraq is the modern name for Meso potamia (Meso—middle, Potamia—rivers) the land lying between the two great rivers, the Euphrates and the Tigris . It is surrounded by Iran on the east, Saudi Arabia in the south, Jordan and Syria on the west and Turkey on the north. The former Turkish areas,Basra, Baghdad and Mosul are now part of Iraq.

Iraq is one of the most ancient countries of the world and has produced a culture, which has influenced European and Asian civilizations. The ancient cities of Eridu Ur, Nineveh and Babylon, all of which were established in the Euphrates Tigris Valley, many centuries before the Christian era, practically laid the foundations of modern civilization. During the First World War, Iraq was a part of Turkey. With the defeat of Turkey in the war, Iraq became a mandatory state of the League of Nations under Great Britain. In 1921, Emir Faizal, then king of

Hejaz, was chosen ruler by a referendum. In 1924 a constitutional monarchy was formed for Iraq In 1932 Iraq was recognised as a sovereign state and enrolled as a member of the League of Nations. A revolutionary party under Abdul Karim Kassem, took over the government after the assassination of the reigning King Faizal II on July 14, 1958. Kassem declared Iraq a Republic, with himself as Premier. In 1963 the Kassem regime was overthrown and Kassem was executed by a military junta under Col. Abdul Salam Arif In July 1968 the Baath Party under General Ahmed Hasan al Bakr captured power. The new party ended the Kurdish problem by granting autonomy for Kurdistan.

IRELAND

N: The Republic of Ireland A: (27,136 sq. miles) P: (1971 Census) 2,971,230 C: Dublin (568,772) T: Cork (122,146 R: Christian L: Irish and English W: Imperial M: Irish Pound (£1 Irish=£1 sterling .38= $1)

Ireland or Eire the Emerald Isle, is an island in the N. Atlantic lying along-side Great Britain The country is made up of a central plateau surrounded by isolated groups of hills and mountains, with a coastline highly indented with innumerable inlets and coves.

Ireland was ruled by Britian. The Irish Home Rule Movement, however, gained momentum and in 1925 the Irish Free State was born. The constitution of 1937, restored the former name of Ireland (Eire) and declared Ireland a sovereign democratic republic. It remained neutral during the Second World War and has since joined no military alliances.

The Parliament is bicameral with a President elected directly by the people for seven years. The House of Representatives (Lower House) consists of 144 elected members. The Senate (Upper House consists of 60 members, 11 of whom are nominated by the Prime Minister. The President on the advice of the Prime Minister summons and dissolves the Parliament. He nominates the Prime Minister and appoints the other members of the Cabinet.

Ireland is primarily agricultural, the main crops being wheat, oats, barley, potatoes, turnips and sugar beet. Food processing is the chief industry followed by brewing, clothing, printing and metals. Wild life is scarce and snakes are practically non existent.

ISRAEL

N: Israel A: (8,017 sq. miles) P: (1972 est.) 3,200,000 C: Jerusalem (291,700) T: Tel-Aviv-Jaffa (384,400), Haifa (217,000), Ramat Gan (115,500) R: Judaism L: Hebrew (official language) and Arabic W: Metric M: Israeli Pound 10.94 Israeli Pound=£1 4.21P=$1.

A republic of the Middle East (West Asia) Israel is surrounded on three sides by Arab countries, who are leagued in opposition to Israel. On the north is Lebanon, on the east Syria and Jordan and on the south Egypt. The Mediterranean Sea lies to the west.

Israel, a republic set up in 1948, occupies the major portion of ancient Palestine. The Jews lived in Palestine from very ancient times but were expelled by the Romans after A D 137. Ever since, it had been the dream of every Jew to go back to the old homeland. This desire took shape in what is called the Zionist Movement started by Dr. Weizmann. Great Britain gave its support to the Zionist Movement, by the Balfour Declaration of November 2, 1917. On the strength of the Balfour Declaration, Jews from different parts of the world, began to pour into Palestine as immigrants The neighbouring Arab States were alarmed at this immigration and attacked the Jewish settlements in Palestine in 1947 with the object of driving out all Jews in Palestine The Jews successfully withstood Arab onslaughts Palestine at the time was a mandated territory administered by Britain. On November 29, 1947 the UN partitioned Palestine between the Jews and the Arabs. A new Zionist state called Israel was proclaimed in the Jewish area of Palestine on May 15, 1948. Israel got the new city of Jerusalem; Jordan, the Arab state got the old city. The first Constituent Assembly (Knesset) was formed in February, 1949, with 120 members. It elected Dr. Weizmann as the first President. In August, 1961 David Ben Gurion's Mapai Party came into power and Ben-Gurion became Prime Minister. Ben Gurion resigned in 1963 and Levi Eshkol became the next Prime Minister. He died on February 26, 1959 and was succeeded by Mrs. Golda Meir. Yitztak Rabin is Premier from June 3, 1974.

In May 1967, President Nasser of Egypt blocked the Gulf of Aqaba, Israel's outlet to the Red Sea and moved his troops into the Gaza Strip. Israel retaliated by aerial attacks on Egypt, Syria and Jordan and crippled the aerial striking power of Egypt This was followed up by military advances into Gaza, the Sinai Peninsula, West Jordan and Golan Heights in Syria. In six days Israel had occupied the whole area and won the war. Israel annexed old Jerusalem and is in occupation of all the other territories captured.

The President is elected for a five-year term by the Knesset. The Knesset (unicameral legislature of 120 members) is elected by universal direct suffrage for a four-year term. Election is based on a system of proportional representation. The Premier and his Cabinet are responsible to the Knesset The country is divided into six administrative districts.

Israel has developed both agriculture and industry, in the little land alloted to it, with considerable expertise and efficiency. They have literally made the deserts to bloom. Kibbutzim (collective cultivation), irrigation schemes and reclamation of desert land, formed the main features of agricultural development Citrus fruits are the main exports. Wine-making is an extensive industry. In diamond-cutting, Israel comes next only to Belgium. The Valley of Jordan and the Dead Sea, yield rock salt, sulphur and potash.

ITALY

N: Republic of Italy A: 301,253 sq km. P: (1970) 54,683,000 C: Rome (2,778,872 T: Milan (1,713,539), Naples (1,278,051), Turin (1,190,688), R: Christian L: Italian W: Metric M: Lira (1515 L=£1 581·5=$1).

The Italian Republic occupies the long peninsular area in Europe extending from the Alps into the Mediterranean Sea. The peninsula is bounded by the Adriatic Sea on the east, the Ionian Sea in the south, and the Ligurian and Tyrrhenian Seas on the west, Switzerland and Austria form the northern boundaries. The islands of Sicily, Sardinia, Elba and Capri in the Mediterranean belong to Italy The largest seaports are Genoa, Naples, Venice, Trieste, Ancona, Bari, Brindisi and Palermo The most important airports are Rome and Milan.

Italy once the headquarters of the great Roman Empire declined into an insignificant power, divided into many petty states during the later Middle Ages. Modern Italy began to develop when King Victor Emmanuel of Sardinia became King of Lombardy, Parma, Modena, the Romagna and Tuscany. Later Sicily, Naples, the Marches and Umbria came under Victor Emmanuel. Mantua and Venetia were added in 1866. The King formally entered Rome on July 2, 1871 The Vatican was recognised as an independent state on February 11, 1929 The Fascist Party under Benito Mussolini took over the government of Italy on 28th October, 1922. Mussolini soon became a dictator (Il Duce). He conquered Ethiopia and made Victor Emmanuel emperor. He sided with Germany and Japan in the Second World War. In 1943 Fascism was overthrown in Italy, and Italy joined the Allies against Germany and Japan On April 28, 1945 Mussolini was put to death by a firing squad of partisans Consequent on a referendum on June 3, 1946, Italy voted for a republic The King laid down his kingship and Alcide de Gaspari, the Prime Minister, became head of the government. The Constituent Assembly elected Enrico de Nicola as provisional Head of State. He was succeeded by Luigi Einaudi the First president of the Republic in 1948.

Under the 1947 constitution, Italy has a Senate elected for six years. The President of the Republic is elected for a seven year term. The President of the republic must be at least 50 years of age. The Parliament consists of two Houses with equal legislative power In the event of disagreement, a popular referendum is to be held The new Chamber of Deputies has 630 members and the Senate has 315 members. In five regions of Italy (Sicily, Sardinia, Trentin-Alto Adige, Friuli-Venezia Giulia and Val d' Aotsa) there is a large degree of regional autonomy. Each Region has a Regional Council and a *Giunta Regionale* which holds executive power.

Since World War II, Italy has revolutionised agricultural production. The chief crops are grapes, wheat, sugarbeet and potatoes. White marble, coloured marble and alabaster are among Italy's main exports. Iron and steel, industrial and electrical machinery, automobiles, machine tools and chemicals are the chief industries of the State. Italy has a big merchant marine fleet with a gross tonnage of over five million.

IVORY COAST

N: The Ivory Coast A: 322,500 sq. km P: (1969 est.) 4,200,000 C: Abidjan (500,000) R: Tribal, Moslem and Christian L: French (official language) and Tribal languages. W: Metric M: CFA Franc (661 F=£1 254F=$1).

A Republic on the Gulf of Guinea, West Africa, the Ivory Coast is bordered by Mali and Upper Volta in the north, Ghana in the east, the Gulf of Guinea in the south, and Liberia and Guinea in the west.

The Republic of Ivory Coast, once an overseas territory of France became an independent republic in August 1960. Since independence it has enjoyed almost unbroken political stability under President Felix Houphouet-Boigny.

The constitution adopted on October 31, 1960 provides that the executive power is vested in a President, elected by universal suffrage for a 5-year term. The unicameral legislature is the 70 member National Assembly, elected by universal suffrage every five years.

Agriculture, forestry and fishing employ 90 per cent of the population. Ivory Coast is the third most important coffee producer in the world and the most important African producer of timber, its biggest export, next to coffee. Cocoa, bananas and pine apples are the other important cash crops. Manganese and diamonds are mined but other minerls remain unexploited.

JAMAICA

N: Jamaica A: (4,243 9 sq. miles) P: (1970 Census) 1,861,300 C: Kingston (192,000) R: Christian L: English W: Imperial M: Jamaican dollar (2 JD=£1 1 JD=$ 0.76.

Jamaica, an island in the Greater Antilles group (of the West Indies) is situated in the Caribbean Sea, 90 miles south of Cuba. The climate varies with altitude, being tropical at sea-level and temperate in the mountain area.

Formerly a British colony, the island achieved autonomy in 1959. In 1958, Jamaica joined Trinidad, Barbados, the Leeward and Windward Islands to form the West Indies Federation but seceded in 1961. In 1962, it became fully independent as member of the British Commonwealth.

As a member of the Commonwealth Jamaica recognises the Queen of England as Head of State. She is represented, by a Governor-General. Jamaica has a bicameral parliament consisting of senate and House of Representatives. The Senate consists of 21 members appointed by the Governor-General. The House of Representatives consists of 45 members elected every five years by universal suffrage.

Agriculture and mining form the backbone of the economy. The dominant crop is sugar, with molasses and rum as important by-products. Bananas, citrus fruits and cocoanuts are also cultivated. The principal mineral is bauxite and new processing factories have made Jamaica the world's second most important producer of alumina. Other industries are cement, tobacco and consumer goods.

JAPAN

N: Japan A: 370,073 sq. km P: (1970 Census) 103,720,000 C: Tokyo (11,408,000) T: Osaka (2,980,000), Nagoya (2,036,000), Yokohama (2,238,000), Kyoto (1,419,000), Kobe (1,288,000) R: Shinto and Buddhist L: Japanese W: Metric Yen (801 Y=£ 1 308 Y=$1.)

Japan consists of four main islands Honshu (Mainland 88,952 sq. miles), Hokkaido (30,304 sq. m.), Kyushu (16,191 sq. m.) and Shikoku (7,240 sq. m.) and a number of islets. *The islands lie in the North Pacific Ocean. Japan is separated from the Soviet Union and Korea by the Sea of Japan and from China by the East China Sea. Japan has a deeply indented coastline measuring 16,654 miles. Most important ports are Yokohama, Kobe, Nagoya and Osaka.

Legend has it that the Japanese Empire was founded by Emperor Jimmu in 660 BC. However, there was no centralised authority until AD 1868, when Emperor Meiji unified the whole of Japan under his rule. Japan had little trade relations with foreign countries until Commodore Perry of USA in 1854 persuaded the Japanese to enter into a trade treaty with USA. In 1889, Japan had her first constitution. She defeated Russia in the Russo Japanese War of 1904-05. This victory raised Japan's prestige among European powers. In 1910, Japan annexed Korea. In 1931 she occupied Manchuria and entered into a war with China. By a surprise attack on the US naval base at Pearl Harbour on December 1, 1941 Japan involved herself in the Second World War on the side of the Axis Powers. The attack on Pearl Harbour was followed up by Japanese occupation of many Pacific islands and the conquest of practically the whole of south east Asia. Japan however surrendered to USA on August 14, 1945.

By a constitution adopted in May, 1947 the Diet (Parliament) became the supreme law-making authority, the Emperor remaining the symbolic head. The Diet has two chambers the House of Councillors of 250 members, elected for six years and the House of Representatives of 467

---

* The island of Okinawa captured by the USA from Japan in one of the last and bloodiest battles of World War II was returned to Japan in June, 1971.

nembers, elected for four years Executive ower is vested in the Cabinet headed by he Prime Minister who is elected by the Diet from its members.

Rice, the staple food of Japan, is cultivated in half the area of arable land. Other crops are wheat, barley, potatoes, and tobacco. Except for limestone and ulphur Japan is poor in minerals and apanese industry is heavily dependent on mported raw materials and fuels. Japan s one of the most industrially advanced ountries of the world. The principal ndustries are iron and steel, chemicals, extiles (cotton, wool, silk and synthetics) ishing, ceramics, precision instruments, ertilizers, transport equipment and machinery and ship building. Japan's important hip yards numbering 92, produce more han 2,380,000 gross tonnage annually.

JORDAN

N: Hashemite Kingdom of Jordan* A: 94,500 sq. km P: (1971, est.) 2,418,000 C: Amman (520,700) T: Irbid 162,000), Nablus (213,000) Jordanian Jerusalem 135,000) R: Moslem L: Arabic W: Metric M: Jordanian Dinar (0.908 JD=£ 1 0 357 JD=$1)

A constitutional monarchy in south-west Asia, Jordan is bounded in the north by Syria, northeast by Iraq, east and south by Saudi Arabia and west by Israel.

Jordan was popularly known as Trans-Jordan till 1949, when the popular name was changed to the Hashemite Kingdom of Jordan The population is chiefly Arabic of whom the majoritiy are Moslems and the rest Christians Half of Jerusalem lies in Jordan including most of the holy places of the Christian faith. Jordan was part of the Ottoman Empire from the 16th century, until the end of World War I, when it became part of the Palestine Mandate. In 1946, Jordan became an independent state.

In May 1967, Israel attacked Jordan as part of its war against Egypt, with whom Jordan and Syria were in alliance. Israel occupied Old Jerusalem and the whole of West Jordan. Old Jerusalem was annexed to Israel, while West Jordan remains under Israeli occupation The loss of West Jordan has destroyed the political integrity and the economic prosperity of Jordan.

The Hashemite Kingdom of Jordan is a constitutional monarchy. The King is the head of state and appoints the Premier. The legislature, National Assembly, is made up of a Senate of 40 members appointed by the King and a Chamber of Deputies of 60 members elected on manhood suffrage.

Jordan is largely a desert area, but the western portion is fertile and produces citrus fruits, wheat, olives. grapes. figs, and cotton. Phosphates from the Red Sea, make up the country's most important export item, but tourism remains its main foreign exchange earner.

KENYA

N: Republic of Kenya A: 582,676 sq. km. P: (1971 est.) 11,694,000 C: Nairobi (477,600) T: Mombasa (245,700) R: Tribal, Christian and Moslem L: Swahili (national language), Kikuvu, Luo and English W: Metric M: Kenya shilling (18 65 Ks=£ 1 7.14 Ks - $1)

The Republic of Kenya is bordered on the north by Sudan and Ethiopia, east by the Somali Republic and the Indian Ocean, south by Tanzania and west by Uganda.

Formerly Kenya was a British colony and protectorate. It became independent on Dec. 12, 1963 and remains within the Commonwealth as a republic.

Executive power is in the hands of a President, Vice-President and Cabinet The legislature comprises a single National Assembly, the former Senate and House of Representatives having been merged in 1967.

Kenya's prosperity rests largely on agricultural products. The chief cash crops are coffee, tea, sisal, cereals, wattle and pyrethrium Kenya is one of the few African countries with an important dairy industry. Mineral industries are being organised and promise to develop.

KHMER REPUBLIC (Cambodia)

N: Khmer Republic (Republique Khmere) A: 181,035 sq. km P: (1969 est) 6,701,000 C: Phnom--Penh (394,000) R: Theravada Buddhism L: Khmer W: Metric M: Riel* (305 R-£1 117R=$1).

Khmer Republic a south east Asian State, is bounded by Thailand and Laos on the north, by South Vietnam on the east and south and by the Gulf of Siam in the southeast.

Khmer Republic represents the last remains of the great Khmer Empire which in the 13th century, covered the whole of south east Asia from China to Burma. In 1863, Cambodia, along with Laos and Vietnam became a French Protectorate and was generally referred to as Indo China. Cambodia became independent on Nov. 9, 1953. On Oct 9, 1970 Cambodia was officially named the Khmer Republic. In March 1970, Cheng Heng became provisional Head of State. On March 10, 1972 Cheng Heng announced his resignation as Head of State in a nationwide broadcast and handed over power to Marshal Lon Nol. Marshal Lon Nol dismissed the constitutional Assembly and took over power as Head of State.

---

* Figures relate to the period before Israeli-Jordan war of June 1967.

* In Oct. 1971 the Riel was devalued and the new rate set at 139.72 -£1.

Khmer Republic is an undeveloped country with 50 per cent of its land covered by virgin forests. Rice occupies 80 per cent of the total cultivated area. Cattle-rearing and fishing are fairly well developed The forests are rich in valuable timber. Iron, copper, manganese and gold are also found.

KOREA (NORTH)

N: Democratic People's Republic of Korea A: 121,193 sq km. P: (1969 est.) 13,300,000 C: Pyongyang Greater Pyongyang) 1,364,000) R: Buddhist and Christian L: Korean W: Metric M: Won (6.17 W=£1 2.57 W=$1).

North Korea ocucpies the northern part of the Korean peninsula It lies between the Yellow Sea and the Sea of Japan. China is in the north

Formerly known as the Hermet Kingdom, Korea (North and South has a recorded history going back to 57 BC. The ancient Chinese invaded and ruled north west Korea for more than 400 years, influencing Korean culture. Round about AD 668 the Silla dynasty united the whole of Korea into one kingdom. Mongols invaded the country in the 13th century, Japanese in the 16th and the Manchurs (China) in the 17th Fear of foreigners fostered isolationlsom and Korea became 'Hermet Kingdom', closing its doors to all but the Chinese

As a result of the Sino Japanese war of 1894-95 Korea became independent. But the Russo Japanese war of 1904-5 ended Korean independent, The Japanese annexed it in 1910.

During the Second World War, Russia and America occupied North and South Korea respectively At the Potsdam Conference, the 38th parallel of latitude was recognised as the line of division between the occupation areas of Russia and America. North Korea was formed into a Communist Republic--Democratic People's Republic of Korea--on May 1, 1948. The North Korean army invaded South Korea in 1950, with the active assistance of Communist China. America supported South Korea. The war was ended by an armistice on July 27, 1953

The highest *de facto* authority is the Politburo of the Korean Worker's Party The Politburo has 11 full and four candidate members. The Chairman of the Presidium of the Supreme People's Assembly is the titular head of state. The *de jure* government is vested in a cabinet under a Premier.

With the formation of the Communist republic in 1948, all industry was nationalised and land distributed among the peasants. Agriculture, has since been collectivised. Industrial development has concentrated on heavy industry, electricity metallurgy, machinery and chemicals. The country is rich in coal and iron and many nonferrous metals. It is one the five leading countries of the world in the production of tungsten, graphite and magnesite.

KOREA (SOUTH)

N: Republic of Korea A: (38,027 sq miles) P: (1970 Census 31,460,994 C: Seoul (3,969,218) R: Christian, Mahayana Buddhism, Confucianism, Shamanism, Taoism and Chundo Kyo (a religion peculiar to Korea) L: Korean W: Metric M: Won (990 W=£1 372 W=$1).

South Korea (Republic of Korea forms the southern part of the Korean peninsula. It is bounded on the north by North Korea, on the east by the Sea of Japan and on the west by the Yellow Sea

South Korea (aligned with USA and the West) formed into a republic in May, 1948 with Seoul as capital. Syngman Rhee was made President and the Republic was formally proclaimed on August 15, 1948. President Rhee was compelled to resign in 1960 The constitution was amended so as to replace the presidential system with a cabinet system At the next election (July 1960) John Chang became Prime Minister South Korea was ruled by a military junta from May 16, 1961 to December 16, 1963 On October 15, 1969 presidential elections were held and on November 26, 1963 a National Assembly was elected by popular vote.

Under the constitution of 1963, the President is elected by popular vote for a four year term. The unicameral National Assembly, the highest legislative body consists of between 150 and 200 seats representing both regional and national constituencies. The Prime Minister and Cabinet are appointed by the President

Agriculture is the mainstay of the economy. The chief crop is rice. Wheat, barley and potatoes are also cultivated. Fish is both an export item and a source of food. There are substantial coal deposits. Other minerals include iron, tungsten, graphite and fluorite New industries have been started, notably in textiles and food

KUWAIT

N: State of Kuwait. A 15,000 sq km P: (1970 Census) 733 000 C: Kuwait Town 80,008) T: Hawalli (106,507) R: Moslem L: Arabic and English W: Metric M: Kuwait Dinar of 1000 fils (857 fils=£1 329 fils=$1).

Kuwait, a small Arab state is on the north western coast of the Persian Gulf between Iraq, and Saudi Arabia. With a per capita income of US dollars 3,738 (nearly Rs 28,000) Kuwait is one of the richest countries in the world.

Kuwait was traditionally under the rule of the Al Sabah dynasty, founded in 1756. It became an independent state on June 19, 1961.

The ruler of Kuwait and head of state is the Amir. The ruler exercises his power through a council of ministers headed by a Prime Minister The legislative organ is the National Assembly of 50 members elected for four years by adult males except servicemen and policemen.

Petroleum is the country's only economic asset, but a gigantic one. Kuwait is the world's fourth largest producer and the second largest exporter of petroleum There are no taxes except customs duties. The enormous income derived from petroleum concession is being utilised in welfare projects

LAOS

N: The Kingdom of Laos A: 236,800 sq. km P: (1970 est) 2,962,000 C: Vientiane (150,000) R: Buddhist L: Laotian and Tribal languages W: Metric M: Kip (1400 K-£1 540 K-$1)

Laos occupies a Strategic position in southeast Asia, bounded on the north by communist China, on the east by Vietnam (North and South), on the south by Khmer republic (Cambodia) and on the west by Thailand and Burma.

Laos is a constitutional monarchy of Thai origin. It became a French protectorate in 1893 and a member of the French Indo Chinese Union in 1899 It became an independent state, by a treaty with France in 1949.

Head of state is the King. Executive power is exercised by the Prime Minister and a council of Ministers. The legislature consists of an advisory King's Council and an elected National Assembly of 59 members.

The chief products are rice, tobacco, cotton, benzoin and shellac, tin and teak wood. Tin and timber are the principal exports. Other industries exist but on a very small scale

LEBANON

N: Republic of Lebanon A: 10,400 sq. km. P: (1970 est) 2,700,000 C. Beirut, (1965 est) 500,000 T: Tripoli (1965 est.) 145,000 R: Christian and Moslem L: Arabic (French and English are widely understood) W: Metric M: Lebanese Pound (£L 8 24=£1 £L3 28=$1

Republic of Lebanon, occupies a strip of land along the Mediterranean coast between Syria and Israel. Beirut the capital is an important airport.

Before the second World War, Lebanon was a French mandated territory. Independence was proclaimed in 1941 and French forces left the country in 1946.

There is a single chamber parliament, the Chamber of Deputies, consisting of 99 members elected every four years The President is elected for six years and must be a Christian, while the Premier must be a Moslem. Voting is compulsory

Primarily an agricultural country, Lebanon produces olive oil, tobacco and fruits The chief Lebanese industries are oil refining, food processing and cement Tourism is a valuable source of income.

LESOTHO

N: The Kingdom of Lesotho A: 11,716 sq miles P: (1966 Census) 969,634 C. Maseru (1966 est) 18,797 R: Christian and Tribal L: English and Sesotho the language of the Basotho Tribe) W: Imperial M: Rand (South African Currency) 1.954 R=£1 0.75R=$1)

The Kingdom of Lesotho is an enclave within the Republic of South Africa, and is bounded by the South African province of Orange Free state, Cape of Good Hope and Natal There are two main geographic divisions, the Lowlands at about 5 to 6 thousand feet above the sea level in the west and the Highlands rising to over eleven thousand feet in the east.

Lesotho was a British protectorate under the name Basutoland. It became independent as Lesotho on Oct. 4, 1966

The Parliament consists of the King, a National Assembly of 60 members elected from single member constituencies. The Constitution was suspended in 1970 by Chief Jonathan, the Prime Minister who expelled King Moshoeshoe II and arrested the leaders of the opposition. A new constitution, radically different from the old has been promised by the Prime Minister.

The principal occupation is agriculture. Lesotho possesses water and hydro-electric resources of great potential. Livestock, diamonds, wool and mohair are, main exports.

LIBERIA

N: The Republic of Liberia A: (38,250 sq. miles) P: (1970 est) 1,523,050 C: Monrovia (150,000) R: Christian L: English (official language) and Tribal W: Imperial, modified by US usage. M: Liberian dollar 2.64 LD=£1 1 LD=1£)

This independent republic lies on the Atlantic coast, the southern side of the West African bulge with Sierra Leone on the north west, Guinea on the north and Ivory Coast on the east.

Liberia was founded in 1822. It was declared a republic on July 26, 1847. It is divided into the Coastal Region of five countries and the Hinterland of four countries.

The President of Liberia is elected for eight years He appoints the cabinet. The Senate (18 members) is elected for six years and the House of Representatives (52 members) for four years. Voters must be of Negro blood and must own property.

About 90 per cent of the population is engaged in agriculture, much of it at subsistence level. Main crops are cassava, coffee, sugarcane and palm oil. Iron ore and rubber are the main exports

LIBYA

N: The Libyan Arab Republic A: 1,759,500 sq. km. P: (1970 est.) 1,943,000 C: Tripoli (1968 est.) 438,000 T: Benghazi (321,000 R: Moslem L: Arabic W: Metric M: Libyan Dinar (0 853 LD=£ 10.329=$1

A republic on the north coast of Africa (Mediterranean coast) Libya is bounded by Egypt, Sudan, Tunisia, Algeria, Niger and Chad.

Formerly an Italian colony, Libya was conquered in 1942 by the Allied powers, Britain and France. In 1949 it was created a sovereign state by a resolution of the UN and the United Kingdom of Libya was formed in 1951 under King Idris I. On Sept. 1, 1966 a group of young army officers, led by Col. Muammar al Gadaffi, effected a bloodless coup, deposing the aged king who was then convalescing abroad, and formed a Revolutionary Command Council. Supreme authority is vested, in the Revolutionary Council, by provisional constitution proclaimed in 1969.

The main agricultural products are dates, olives, lemon, almond, wine and tobacco. Fishing, tobacco processing, dyeing and weaving are the important industries. Oil was discovered in 1957 and today Libya is one of the leading producers of oil in the world. Oil now accounts for 99 per cent of Libyan export earning although it employs only about five per cent of the total labour force.

LIECHTENSTEIN

N: Principality of Liechtenstein A: 160 sq, km P: (1970 21,350 C: Vaduz (3,921) R: Christian L: German W: Metric M: Swiss Franc (10 05 fr=£1 3.85 fr=$1).

Liechtenstein is a small state on the Upper Rhine, between Austria and Switzerland It measures 24 km from north to south and 9 km from east to west

The principality of Liechtenstein was created in 1719 as a fief of the Holy Roman Empire The French, under Napoleon occupied it for a time. After Napoleon's downfall in 1815, Liechtenstein joined the Germanic Confederation In 1866 when the Confederation was dissolved Liechtenstein established itself as a completely independent monarchy. In 1923, it entered into a treaty with Switzerland, which entitles it to share Swiss currency, customs and postal system But unlike, Switzerland, Liechtenstein has not yet enfranchised its women.

By the 1921 Constitution, legislative powers devolved on a Diet of 15 members elected for four years. The King contributes about $ 110,000 annually to the public treasury. There are no taxes, the principal source of public revenue being the fees levied on international companies who have their headquarters in the State

The economy is mainly industrial. Chief industries are machines and tools, textiles, foodstuffs and leatherware. Finely engraved postage stamps are sold to philatelists around the world.

LUXEMBOURG

N: The Grand Duchy of Luxembourg, A: 2,586 sq. km. P: (1970 est.) 339,848, C: Luxembourg (76,143) R: Christian L: French (official language), German and Letzeburgish (spoken language) W: Metric M: Luxembourg Franc (115 Lfr=£1 44 Lfr=$1).

Luxembourg is a small state lying in between Germany, Belgium and France. It is a Grand Duchy, which was successively under the domination of Spain, Austria and France until 1815 Its independence was confirmed by the Treaty of London, 1867.

Under the Constitution of 1868 as amended in 1919 and 1956 there is a single chamber legislature, the Chamber of Deputies, with 56 members elected for five years. The Grand Duke, chooses the Ministers, who form the Cabinet, consisting of the Prime Minister and six members. In addition to the Cabinet there is a Council of State of 21 members nominated by the Grand Duke, who form the Supreme administrative tribunal and also carry out certain legislative functions

As a member of the European Economic Community, the Benelux, the European Steel and Coal Community and the EURATOM, Luxembourg is a highly industrialised state. Its iron deposits, formed the basis of a big steel industry, which accounts for 70 per cent of the country's exports Since 1960, there has been a diversification of the economy, intended to reduce the country's dependence on steel. Agriculture occupies only 10 per cent of the population.

MALAGASY REPUBLIC (MADAGASCAR)

N: The Malagasy Republic **A:** 595,790 sq km **P:** (1968) 7,027,415 **C:** Tananarive 335,000 **T:** Tamatave 55,000) **R:** Christian, Moslem and Tribal **L:** Malagasy and French (official languages), Hova and other dialects, (spoken languages) **W:** Metric **M:** Franc Malagache FMG (661 FMG=£1 254 FMG=$1).

Malagasy Republic, formerly the French overseas territory of Madagascar is a large island off the east coast of Africa from which it is separated by the 240 mile wide Mozambique Channel.

Madagascar became a French protectorate in 1885 and in 1896 a French colony. It proclaimed itself an autonomous republic within the French Community on October 14, 1958. Complete independence was achieved in 1960

The executive power is vested in the President who is elected for a seven year term. The legislature consists of two Houses, the National Assembly and the Senate

The President Philibert Tsiranana resigned on Oct. 11,1972 and turned over full executive powers to Army Chief of Staff, Gen. Gabriel Ramanantsoa who (as Prime Minister) formed a new government.

The economy is essentially agricultural. Rice is the staple food and coffee the chief export. Tobacco, rubber and vanilla are also cultivated. Large herds of cattle are raised. Mineral deposists include graphite, mica, nickel and copper. Since 1960, chromite is being mined. An oil refinery is already working and oil prospecting goes on apace. The economy is operating under Five Year Plan

MALAWI

N: Republic of Malawi **A:** 45,747 sq. miles **P:** (1971 est.) 4,549,000 **C:** Zomba* (19,666) **R:** Tribal, Christian and Moslem **L:** English official language, Chichewa, a local dialect is being developed as the national language **W:** Imperial **M:** Kwacha (K2=£1 K 0.77=$1).

Malawi was originally known as Nyasaland and formed part of the Federation of Rhodesia and Nyasaland under British domination The predominantly African population agitated for independence for Nyasaland under the leadership of Dr Hastings Banda. The British Government under their policy of progressively liberating colonies and protectorates, granted independence to Nyasaland, separating it from Northern and Southern Rhodesia. On July 6, 1964 Nyasaland was reborn as independent Malawi State Malawi became a republic in July, 1966.

The Head of State and Government is the President Dr Hastings Banda was appointed President for life in 1971. Executive power is vested in the President, acting as the Prime Minister. Ministers are responsible to the President. There is a Parliament consisting of the President and the National Assembly of 75 members, of whom 60 are elected and 15 nominated, for five years

Malawi has a length of 520 miles. Its width varies from 200 to 50 miles. It is bounded by Tanzania, Mozambique and Zambia. Lake Nyasa lies on its eastern side A land of lakes and mountains, Malawi has infinite beauty and is considered a tourists' paradise.

---

* A new capital is being built at Lilongwe

MALAYSIA

N: The Federation of Malaysia A: 127,581 sq. miles P: (1970 Census) 10,434,000 C: (Federal Capital) Kuala Lumpur (451,728) T: George Town (270,019), Ipoh (247,689), Johore Bahru (135,936) R: Moslem, Buddhist, Hindu and Christian L: Malay (National language), English is widely spoken, Chinese dialects and Tamil W: Imperial and local M: Malaysian dollar (7.35 Md=£1 2.82 Mu=$1).

Malaysia consists of the 11 Malayan states and the Borneo states of Sarawak and Sabah (North Borneo). Malaya on the Malay Peninsula, is bordered on the east by the South China Sea, on the south by the strait of Johore, on the west by the Strait of Malacca and the Andaman Sea, and on the north by Thailand. Sarawak and Sabah are bordered on the south by Kalimantan. On the west, north and east are the South China, Sulu and Celebes Seas. The population of Malaysia is mixed. The Malay proper a southern branch of the Mongoloid race account for about 50 per cent of the population, the Chinese for about 37.5 per cent and Indian for about 11 per cent.

The Federation of Malaysia was formally inaugurated on September 16, 1963. It comprises the Federation of Malaya (which includes 9 Malay Sultanates) and the two former British Straits Settlements of Malacca and Penang and the former British Crown colonies of Sabah (previously known as British North Borneo and Sarawak. Singapore which was a member of the Federation of Malaysia when it was first inagurated,severed its ties with the Federation on August 9, 1965 and became an independent republic.

The supreme head of Malaysia is an elected monarch. The monarch acts on the advice of Parliament and a Cabinet. The Federal Parliament is composed of two Houses, the Senate and the House of Representatives. The Senate has 58 members who serve six year terms. The Houses of Representatives has 144 members elected for six year terms. The Federal Executive is the Cabinet, headed by the Prime Minister, leader of the majority in the Federal House of Representatives.

The economy is sustained on the export earnings of a narrow range of products, principally, rubber, tin, palm oil and timber. Malaysia is the world's leading producer of rubber. Palm oil and timber are increasing in importance as export items. Malaysia is also the world's major producer of tin, providing about 40 per cent of the world output. Iron ore, gold, ilmenite and bauxite form other major mineral resources. Oil production is becoming important. Sarawak is already producing about 70,000 barrels a day. Other areas are being explored for oil.

MALDIVES

N. The Republic of Maldives* A: 20,000 sq. miles P: (1970) 114,469 C: Malei (13,610) R. Moslem L: Maldivian (a dialect of Sinhalese) W: Imperial M. Maldivian Rupee (5.9 R= $ 1) 1 Maldivian Rupee = 1.25 Sri Lanka Rupees.

The Maldives, an indenendent Sultanate is an archipelago in the Indian Ocean to the south west of India and to the west of Sri Lanka. The archipelago consists of 19 coral atolls including about 2,000 individual islands, and extends for about 700 miles from north to south, the northernmost atoll lying about 300 miles south-west of India and 400 miles from Sri Lanka.

The Islands had been a British protected state since 1887. The Maldives attained full independence on July 26, 1965. It became a republic on November 11, 1968.

The Head of the State is the President elected by popular vote every four years. The Majlis is the legislative body, consisting of 54 members, elected for five years. The President is assisted by a cabinet, chosen by him, but responsible to the Majlis.

Most of the people are seafarers. Coconuts, fruits and millet are the main crops. The chief occupation is fishing, and production of processed fish is the main industry.

MALI

N: Republic of Mali A: 1,239,998 sq km P: (1969) 4,929,000 C. Bamako (175,000) R: Moslem and Tirbal L: French (official language), Bambara, Sonrai and a number of other languages W: Metric M: Mali Franc (1326 Mali Francs =£1 510MF = $1).

Mali is a land-locked state in West Africa, bounded by Algeria on the north, Mauritania and Senegal on the west, Guinea and Ivory Coast on the south and Upper Volta and Niger on the east.

The Republic of Mali in West Africa was once a French overseas territory. In 1958, it became a republic called the Republic of Soudan, within the French Community. In 1959, it joined with Senegal to form the Federation of Mali. The Federation was dissolved in Aug 1960

Known as the Maldive Islands until April 1969.

and the Soudan was proclaimed the Republic of Mali.

On Nov. 19, 1964 President Modibo Keita was overthrown in a bloodless *coup d'etat* led by army officers under St. Moussa Traore. They rule the country under a provisional constitution.

The country is poor in natural resources. A large part of it lies in the Sahara desert Only about 20 per cent of the land is cultivable The main crops are rice, millet and groundnuts. Livestock-raising is important and the processing of hides and skins, remains the only industry. There is extensive river fishing and good export trade in dried and smoked fish.

MALTA

N: Malta A: 121 sq. miles P: (1970) 322,187 C: Valetta (15,466) R: Christian L: Maltese and English official language) Italian is widely spoken W: Imperial M: Maltese Pound (0.98 M£-£1 0.37 M£=$1.)

Malta is an island in the central Mediterranean Sea, 60 miles from Sicily and about 200 miles from the African coast This state also includes the adjoining islands of Gozo and Comino.

Malta became an independent member of the Commonwealth of Nations on September 21, 1964. The British Queen is represented in Malta by the Governor General.

The head of Government is the Prime Minister, leader of the majority in the unicameral Parliament (the House of Representatives), which comprises 50 members elected by universal suffrage. every five years under a system of proportional representation.

The rocky country has no natural resources. no rivers. no lakes and almost no trees. Cultivable land amounts to less than half the area and is mainly taken up for building houses. With the drastic reduction of military expenditure by Britain, the Maltese had to set up new industries to support themselves, Textiles, footwear, rubber products and plastics are now exported Agricultural products include onions, potatoes and tomatoes. Tourism however remains the island's major industry.

MAURITANIA

N: The Islamic Republic of Mauritania A: 1,030,000 sq. km P: (1968 est.) 1,120,000 C: Nouakchott (20,000) R: Moslem L: Arabic and French (official languages) W: Metric M: CFA Franc (661 F-£1 251 F-$1).

The Islamic Republic of Mauritania is on the Atlantic coast of the West African bulge. It is bordered by Spanish Sahara in the north west. Algeria in the north east, Mali in the east and Mali and Senegal in the south.

Mauritania, a former French overseas territory became an autonomous unit in 1958 and fully independent in 1960. It has chosen to remain outside the French Community.

The constitution of 1961 provides that the head of state shall be a President elected by universal suffrage for a five year term. The National Assembly, a unicameral legislature, is also elected by universal suffrage for five years. The President is assisted by a Council of Ministers which he appoints.

The economy is traditionally nomadic. Livestock, mainly sheep are grazed over a wide area. Fishing is important Important deposits of iron and copper have been sighted and are being exploited Oil prospecting goes on

MAURITIUS

N: Mauritius* A: (720 sq. miles) P: (1969 est) 798,684 C: Port Louis (140,000) R: Hindu, Moslem and Christian L: English, French official purposes) and Creole (derived from French), Hindi, Urdu and Chinese W: Metric M: Rupee 13.33 R-£1 5 11 R-$1 .

Mauritius lies about 500 miles east of Malagasy in the Indian Ocean. The northern part of the island is a flat plain rising to a fertile central plateau bordered by mountains

Mauritius was discovered by the Portuguese between 1507 and 1512, but the Dutch were the first settlers. The British occupied the island in 1810, and it was formally ceded to Great Britain by the Treaty of Paris (1914). It became an independent state on March 12, 1968

The head of state is Queen Elizabeth II, who is represented by a Governor General. The legislative assembly has 70 members, from which the Prime Minister and Cabinet are chosen.

The island is an extreme example of a one crop-economy, sugar cane being the only crop that supports the economy Molasses, tea and tobacco are exported There is widespread unemployment, which is probably the underlying reason for the racial tensions in the country between Indians, Negroes, Europeans and Coloureds.

---

* Dependencies-Rodrigues, Agalega and Cargados Carajos.

MEXICO

N: United States of Mexico A: 1,972,547 sq km P:(1970 Census)48,381,547 C: Mexico City (2,902,969) R: Christian L: Spanish W: Metric M: Peso 32.45 P=£1 12.48 P=$1.

A federal republic of middle America Mexico is bounded by the US, British Honduras and Guatemala Gulf of Mexico and Gulf of Campeche are in the east while Pacific Ocean and Gulf of California are in the west. The climate varies with altitude. The lowlands are hot and wet, or damp while the highlands are temperate Much of the north and west is desert.

Its history falls into four epochs- the era of the Indian empires (before 1521) the Spanish colonial phase (1521 1810), the period of national formation (1810-1910) and the present period which began with the social revolution of 1911-21.

The constitution of Mexico is similar to that of the United States. The executive is led by the President elected for six years. The legislature consists of two Houses, the Senate of 60 members elected for six years and Chamber of Deputies of 210 members elected for three years. The Federation is made up of 29 states, two territories and a federal district Mexico City. Mexico City was the venue of the 1968 Olympics.

Mexico is well suited for agriculture but is obliged to import food The important agricultural products are maize, rice, wheat and sugar. Sea fishing is also important as an occupation. Mining is the principal industry. Mexico is one of the world's leading producers of silver and sulphur. Oil is an important item of the economy with 14 refineries working. Other minerals include coal, zinc, lead and manganese.

MONACO

N: The Principality of Monaco A: 170 hectares 1.51 sq km. P: 1970 231,52 C: Monte Carlo (1968 9,948 R: Christian L: French and Monegasque a mixture of French and Italian W: Metric M: French Franc See under France).

A sovereign principality on France's south-eastern Mediterranean coast, Monaco is bounded on land by the French department of Alpes Maritimes

Monaco has existed as a separate entity since the 10th century AD. During the French Revolution, Monaco lost its independence but regained it in 1814. On Jan. 7, 1911, Prince Albert, great-grandfather of the reigning sovereign Prince Rainier promulgated the first constitution, which was amended in 1917. The legislative power is exercised by the Prince and the National Council of 18 members, elected for five years Executive power is exercised in the name of the sovereign by the Minister of State, assisted by three members of the Council of Government.

Monaco is famous as a tourists' centre. Its main sources of revenue are tobacco monopoly and taxes on gambling carried on in Monte Carlo, Casino

MONGOLIA

N: Mongolian People's Republic A: 1,565,000 sq. km. P. (1960 1,230,200 C: Ulan Bator (1969 est. 254,000 R: Buddhist, Lamaism still survives L: Mongolian (written since 1916 in Russian characters) W: Metric M: Togrog 9.60 T=£1 4.55 T=$1.

The Mongolian People's Republic lies in Central Asia with the Soviet Union to the north and China to the south, east and west

Northwest Mongolia is fertile but the south west is mostly desert, including the famous Gobi desert and the Ordos desert in the extreme southeast. The majority of the population is still nomadic

Mongolia, originally a Chinese province proclaimed its independence in 1911. A revolutionary government came to power in 1921. A People's Republic was proclaimed with Russian assistance in 1924 In 1946 China recognised the independence of the Mongolian People's Republic and this independence was guaranteed by the Sino-Soviet Treaty of 1950. Mongolia became a member of the UN in 1961 A 20-year Treaty of Friendship, Co-operation and Mutual Assistance with the Soviet Union was signed in 1966. Though treaties of friendship and economic assistance have been signed both with China and the Soviet Union, the Mongolian Republic leans more towards Russia than China.

Legislative power is vested in the Great People's Khural, which meets anually and is elected for a three-year term. In the period between sessions the highest organ of state power is the Presidium of the Great People's Khural. The highest executive organ is the Council of Ministers, responsible to the Great People's Khural

Livestock raising is the principal occupation and comprises horses, oxen, sheep, goats, and camels. The herdsmen are organised in collectives. State Farms, of which there were 32, in 1970, practice large-scale agriculture and have brought vast areas of virgin land under cultivation. Minerals include tin, led and copper. Industrialisation, with foreign aid is on the way.

MOROCCO

N: Kingdom of Morocco. A. 500,000 sq. km. P: (1969) 15,030,000 C: Rabat 1970 est.) 261,000 T: Casablanca (1,250,000), Marrakesh (262,200) R: Moslem L: Arabic W: Metric M: Dirham 12 Dh=£1 4.66 Dh=$1.)

The monarchy of Morocco, occupying the north-western tip of Africa is a remnant of the great Shereefian Empire founded by Arabs in the 7th century AD and which ruled the whole of North-west Africa and much of Spain It is bordered by Algeria on the east and the Spanish Sahara on the south, North Atlantic Ocean on the west and Mediterranean Sea on the north The Atlas mountains stretch across Morocco.

By the beginning of the 20th century, part of Morocco came under the influence of the French and part under Spain. Tangier, the leading port of Morocco was an international zone. In 1956 Morocco became independent having concluded treaties with France and Spain In 1957 Morocco was proclaimed a Kingdom under King Mohammed V. Tangier was incorporated into Morocco in 1960

Primarily an agricultural country Morocco produces cereals, including barley, wheat and corn. Vineyards are abundant and dates form a regular crop. Livestock raising is important and fishing is well developed. The most important mineral extracted is phosphate, of which Morocco remains a world supplier. Other minerals are iron ore, coal, lead and manganese.

MUSCAT AND OMAN

N: Sultanate of Muscat and Oman A: 82,000 sq. km P: (1970 est.) 750,000 C: Muscat R: Moslem L: Arabic W: Imperial, metric and local M: Rial Saidi (RS1=£1, RS 0 384=$1)

The Sultanate of Muscat and Oman lies in the south east part of the Arabian Peninsula. Its coast line stretches along the Arabian Sea, Gulf of Oman and Persian Gulf.

The country has a long history. Early Semitic tribal settlers were conquered by the Persians by about 550 B C. Later conquerors were the Parthians, the Caliphs of Baghdad, Turks, Portuguese and Persians again The Al bu Said dynasty threw out the Persians in 1744.

The Government is a hereditary monarchy. The Sultan is assisted in his government by a personal Adviser, the Minister or the Interior, a Military Secretary and the Secretary for External Affairs.

Cultivated areas produce bananas, grapes, wheat, vegetables, coconuts and frankincense. The chief exports are dates and other fruits, salted fish and pearls.

NAURU

N: Republic of Nauru A: 8 2 sq. miles P: (1971 est.) 6,927 C: Nauru R; Christian L: English and Nauruan W: Imperial M: Australian dollar.

Nauru is a small island in the central Pacific. It is an oval-shaped upheaval coral island of approximately 12 miles in circumference, surrounded by a reef which is exposed at low tide

Nauru island was discovered by Capt Fearn in 1798 In 1888, Germany conquered the island and set up a colony During the first World War, Australia occupied it on behalf of the allied forces It was administered under a mandate conferred on the British Empire and approved by the League of Nations until November 1, 1947, when the UN General Assembly approved a trusteeship agreement with the governments of Australia, New Zealand and United Kingdom as joint administering authority. Nauru became an independent republic on January 31, 1968

The head of state is the President He is assisted by a 4 man cabinet. The Legislative Assembly is unicameral, consisting of 18 members elected by universal suffrage.

About four-fifths of the area of Nauru is phosphate bearing rock Export: Phosphates.

NEPAL

N: Kingdom of Nepal A: (54,362 sq. miles) P: (1971 Census) 11,292,841 C: Kathmandu (332.982) R: Hindu and Buddhist L: Nepali W: Imperial and local M: Nepalese Rupee (26.38 N R=£1 10.1 NR=$1)

Nepal is a constitutional monarchy in the southern slope of the Himalayas, situated between India and China. Sikkim lies to the east of Nepal. It was originally divided into numerous petty principalities under local chiefs.

By the 19th century, the petty chieftains were united under the ruling family of the Shahs But the kings of the Shah family were virtual prisoners of the Rana family, who claimed to be hereditary Prime Ministers of Nepal. In 1951, Maharajadhiraja Tribhuvana Vir Vikram ended the rule of the Ranas and established a popular government.

On December 15, 1960 King Mahendra suspended the Parliament, dismissed the government and assumed full powers On December 16, 1962 the King promulgated a new constitution which established "Partyless Panchayat Democracy" Under this system the National Assembly consists partly of elected members and partly of nominated members. King Mahendra died on January 31, 1972. He was succeeded by his son King Birendra.

Nepal is rich in forest wealth and quartz deposits. The principal exports are jute, rice, cattle, hides, wheat and herbal drugs.

NETHERLANDS

N: Kingdom of the Netherlands A: 33,680 sq km. (excluding Antilles and Surinam) P: (1970 est.) 13,119,430 C: Amsterdam (1971) 820,406 Seat of Government, The Hague 537,643) T: Rotterdam (679,032). Utrecht (278,417 R: Christian L: Dutch W: Metric M: Gulden, also known as Florin or Guilder (8.27 G=£1. 3 20=$1)

The Kingdom of the Netherlands comprises the Netherlands, Antilles and Surinam. The Netherlands is located in Europe, between Belgium and Germany The country is plainland with an average height of 37 ft. above sea-level Much of the land however, is below sea-level and is protected by dykes, which extend for some 1,500 miles

In the 9th century A D when the Holy Roman Empire disintegrated, the low land countries of Europe—Netherlands, Holland, Belgium and Flanders—split up into a number of duchies. These little principalities remained under Burgundy for some time and later under the Spanish King. The Spanish King Philip II sent the Duke of Alva, as Governor to check the rise of nationalism and the growth of Protestantism in the lowland areas. In 1579 William the Silent, Prince of Orange, formed a confederation of the northern provinces (lowlands) called Estates, in the Union of Utrecht. This was the first step towards the formation of a nationalist State. The Union repudiated Spanish sovereignty in 1581 and became the Dutch Republic. But in 1795. France established its dominance in the Netherlands. In 1813 the French were expelled from Holland. In 1815, the Congress of Vienna, formed a kingdom of the Netherlands, including Belgium, under William I with Brussels and The Hague as alternative capitals. In 1830 the Belgians revolted and formed a separate kingdom.

The constitution of the Netherlands, first promulgated in 1814, but later amended provides for a hereditary constitutional monarchy. Parliament is bicameral, consisting of the Lower Chamber or Second House and the First Chamber or Upper House

NEW ZEALAND

N: Dominion of New Zealand A: 103.740 sq miles P: (1971 Census) 2,862,631 C Wellington (324,032) T: Auckland (689,400) Christ Church (302,610) R: Christian, L:English and Maori dialects W: Imperial* M: New Zealand Dollar (2 20 NZ=£1 0.82 NZ=$1).

New Zealand lying in the South Pacific Ocean with Tasman Sea on the west, consists of two large islands, North Island (44,281 sq m.) and South Island (58,093 sq. m.) and numerous small islands of which Stewart Island (670 sq m) and Chatham Island are the largest. Cook Strait separates North Island from South Island. The islands cover a diversity of topographical features, with mountains, lakes, waterfalls, virgin forests, volcanoes and hot springs.

New Zealand was discovered in 1642 by a Dutch navigator, Abel Janszoon Tasman. British sovereignty was proclaimed in 1840. New Zealand is the home of the Maoris, a highly developed Polynesian race, whose ancestors had migrated to New Zealand several centuries ago. It became a Dominion in 1907 and an independent member of the Commonwealth in 1947.

It is a self-governing member of the Commonwealth and the Queen is represented by a Governor General who is aided by an executive council. The unicameral legislature consists of the House of Representatives of 80 members elected for a term of 3 years.

---

* The metric system was introduced into the schools in 1971; the whole country is expected to go metric by 1975.

Primary industries are dairying, meat and wool. The major crops are wheat, oats and barley. Minerals include coal and gold. Pulp and paper industry is highly developed. Iron, steel and aluminium are new industries.

NICARAGUA

N: Republic of Nicaragua A: 118.358 sq. km P: (1968) 1,841,759 C: Managua 397,663) R: Christian L: Spanish W: Metric (Spanish and local measures are also in general use) M: Cordoba (18·35 C=£1 7.05 C=$1).

Nicaragua is located in the heart of Central America, bordered on the north by Honduras, on the south by Costa Rica, on the east by the Caribbean Sea and on the west by the Pacific Ocean.

After gaining independence from Spain in 1821, Nicaragua was united for a short period with Mexico, then with the United Provinces of Central America, finally becoming an independent nation in 1838

Since 1936 the Somaza family had dominated Nicaraguan politics. From 1936 to 1967 there were 4 Presidents of whom 3 were Somozas. Gen. Anastasio Somoza, who became President in 1967 persuaded both Houses of Legislature to vote their own dissolution in 1971 on the strength of a promise to draw up a new constitution and to hold fresh general elections

Agriculture is the principal source of national income The most important agricultural products are cotton, coffee, sugarcane and cocoa. Chief industries are matches, leather, beer, plywood, cosmetics and plastic goods. Gold and copper are mined.

NIGER

N: Republic of the Niger A: 126,700 sq. km. P: (1970 est.) 4,016,000 C. Niamey 86,000) R: Muslim and Tribal L: French, local languages Tuareg, Djerma, Fulani and Hause) W: Metric M: Franc CFA 661 CFA=£1 254 CFA=$1)

The Republic of the Niger, a former French overseas territory lies in the heart of West Africa. It is surrounded by Algeria and Libya in the north, Chad in the east. Nigeria and Dahomey in the south and Upper Volta and Mali in the west.

Formerly, part of French West Africa. Niger became a self-governing republic within the French Community in 1958. It became fully independent on August 3, 1960.

Niger is a republic with an elected President who is the head of the executive It is an agricultural country with very limited resources. The principal crop is peanuts, with cotton following. Raising of cattle is the next most important occupation of the people.

NIGERIA

N: Federation of Nigeria A: 356,669 sq. miles P: (1963 Census) 55,770,056 C: Lagos, (Federal capital) (665,246). Ibadan (Western State Capital) (627,379) R: Moslem, Christian and Tribal L: English, Hausa, Ibo and Yoruba W: Imperial and local M: Nigerian Pound (0.85 N=£1 0·33 N=$1)

The Federation of Nigeria is a West African coastal state within the Gulf of Guinea, with Niger to the north and Dahomey and Cameroon on either side It was composed of four distinct autonomous regions, each with its own administration, Northern, Western. Mid-western and Eastern; plus the federal territory of Lagos.

As reorganised in 1967 Nigeria is now made up of 12 States, the Northern region having been split into six States and the Eastern into three, in addition to the Mid Western, Western and Lagos States.

Formerly a British colony and protectorate, Nigeria became a federation in 1954. It became an independent state in 1960 In October 1963 Nigeria became a republic within the Commonwealth. In January 1966 the civil government was brought to an end by the overthrow and death of two regional premiers and of the Federal Prime Minister Sir Abubaker Tafawa Balewa. A provisional military government headed by Maj. Gen. Johnson Aguiyi Ironsi took over both the federal and regional governments The Federal system was abolished by Maj. Gen. Ironsi in May 1966 and a unitary form of government was introduced. Intercommunal violence resulted in the dislocation of the country and the breakdown of central authority. Maj. Gen. Ironsi was killed in July, 1966 and his successor Gen. Gowon revived the Federation,

A rift developed between the Federal Government and the Military Governor of the Eastern Region, Col. Odumegwu-Ojukwu, over long term constitutional arrangements. On May 30, 1967 the Eastern Region seceded from the Federation of Nigeria, declaring itself an independent republic, Biafra. The federal government refused to recognise the secession. The unequal civil war between the rest of the Federation and seceded Biafra ended in 1970 with the Federal troops occupying the whole of Biafra. Nigeria is again a single political entity.

Under a constitutional decree of 1967 all powers are vested in the Supreme Military Council, made up of the Military Governors of the 12 States the heads of services and the Inspector General of Police under the chairmanship of the Commander in Chief, Gen. Gowon who had promised a return to Curlian rule, as early as possible.

The chief agricultural products are cocoa, palm oil, palm kernels, cotton rubber, peanuts and skins Tin, lead and asbestos represent the chief minerals. There is extensive exploitation of the forest for various timbers. Crude oil exports have become important since 1970 Industry is diversified; beer, cement, cigarettes and aluminium products being the main items.

NORWAY

N: Kingdom of Norway **A**: Norway Svalbard) 385,932 sq. km. **P**: 1970 3,888,305 **C**: Oslo 481,548) **R**: Christian **L**: Norwegian. There are two forms of the Norwegian language **W**: Metric N. Krone (17.28 Kr=£1 6.65 Kr=$1)

Norway extends along the western part of the Scandinavian peninsula from the Skagerak which separates it from Denmark to the North Cape in the Arctic Ocean, where it meets Finland and Soviet Russia The country's greatest length is 1,100 miles with a width varying from 4 to 270 miles. Norway is known as the *Land of the Midnight Sun*, (See p. 169) because in the North Cape area, the sun does not set from the middle of May until the end of July, nor does it rise above the horizon from the end of November to the end of January. More than 72 per cent of Norway is unproductive Rivers and lakes occupy about 5,000 sq miles, and forests nearly 30,000 sq. miles

Norway was an independent country for many centuries, but was united with Denmark between 1381 and 1814 and with Sweden between 1814 and 1905. In 1905 Norway and Sweden agreed to dissolve the union, both becoming independent sovereign states. The constitution adopted by Norway in 1814 provides for a constitutional monarchy, with a parliament the Storting) consisting of 150 members, elected for four years.

Executive power is nominally vested in the King The King's executive power is exercised through the State Council or Cabinet headed by the Prime Minister. The King appoints the government in accordance with the will of the Storting (Parliament).

The important agricultural products are oats, rye and potatoes A special feature of Norway is that agriculture is combined with fishing, fur, farming and forestry. Fishing is a major occupation with immense quantities of cod, herring, whale, tuna, seal, mackerel and salmon Forests provide raw material for many industries. Mining is an important industry. There is very little coal, but plenty of hydro-electric power to run big factories. The principal manufactures are food products, machinery and metal work, wood, paper and pulp, textile, soap, aluminium and electro-chemical products

PAKISTAN

N: Islamic Republic of Pakistan **A**: 310,403 sq. miles **P**: (1972 Sept.) 64,892,000 **C**: Islamabad (1961 Census) 50,000 **T**: (all 1971 est.) Karachi 3,442,000, Lahore 1,985,800 , Rawalpindi (489,500), Hyderabad (Sind) (785,000), Lyallpur (1,016,400), Multan 677,800), Peshawar (318,700 **R**: Moslem **L**: Urdu (National language and English **W**: Imperial **M**: Pakistan Rupee (12.41 Rs =£1 4 76 Rs. $1).

The State of Pakistan, now confined to West Pakistan, originally came into existence in 1947, following the partition of India, into two States, India and Pakistan. Pakistan thus formed, consisted of two distinct and distant geographical blocs—West Pakistan and East Pakistan, separated from each other, by nearly 1,000 miles of Indian territory. In Dec, 1971 East Pakistan declared itself an independent sovereign republic under the name of Bangladesh. Thus Pakistan was reduced to West Pakistan, made up of the old British provinces of Sind, part of Punjab, Baluchistan and the North West Frontier Province West Pakistan, that is, the present day Pakistan, borders Afghanistan, Iran, India and China.

Pakistan has had a troublesome history from the outset. First constituted as a Dominion in the British Commonwealth of Nations, with Muhammad Ali Jinnah, Father of Pakistan as Governor General, Pakistan proclaimed itself a republic within the Commonwealth in 1956 General Iskandar Mirza, the first President was displaced by the Commander in Chief Gen Ayub Khan in 1958. In 1969, Gen Yahya Khan took over the government. He retired in disgrace and gave over the government to President Bhutto.

In the interval, Pakistan embroiled itself in wars with India, over Kashmir, Rann of Kutch and East Pakistan, losing the last of the wars ignominiously in 1971 and with it East Pakistan. East Pakistan has since become an independent country under the name Bangladesh On April 10, 1973, the National Assembly of West Pakistan adopted a new constitution. The four provinces, formed in 1970, namely Sind, Punjab, Baluchistan and Frontier Province constitute the Pakistan of today

Agriculture is the mainstay of Pakistan economy. Wheat, sugar cane, and cotton are the major crops. Industries are being developed with foreign assistance. The emphasis is however, on armaments, on which Pakistan spends nearly 60 per cent of its total revenue which comes to about 10 per cent of the Gross National product.

PANAMA

N: Republic of Panama A: 75,650 sq km. (excluding the Panama Canal Zone) P: (1970 Census) 1,428,082 C: Panama City 348 704) R: Christian L: Spanish W; Imperial and Metric M: Balboa (2.60 B=£1 1B=$1 .

Panama is a narrow strip of territory at the southern end the Isthmus separating North and South Americas It is situated between Costa Rica in Central America and Colombia in South America. The Caribbean Sea is on the north and Pacific Ocean in the south At its narrowest point, 50 miles wide, the Atlantic and the Pacific Oceans are united by the famous Panama Canal.

In 1501 Spain discovered Panama. Panama left Spain to join Colombia in 1821. After a revolt in 1903 it declared its independence and established a separate government.

On October 12, 1968 the civilian government of Arnulfo Arias was ousted by a military *coup d' etat*. Following the military coup the National Assembly was dissolved. After eleven days, President Arias was deposed. Four months of uncertainty continued, when Gen. Omar Torrijos, Commander of the National Guard, emerged as the leader of the nation. Gen Torrijos has promised a Constituent Assembly to draw up a new constitution.

The soil is extremely fertile but nearly one-half of the land is uncultivated. The chief crops are bananas, cocoa, coffee and cereals Industry is mainly centred around sugar and alcoholic beverages Shrimp fishing is important. There are timber resources, notably mahogany.

PARAGUAY

N: Republic of Paraguay A: 406,752 sq. km P: (1970 est,) 2,386,000 C: Asuncion (440,000) R: Christian L: Spanish W: Metric M: Gurani (321 G = £1 126 G=$1)

Paraguay is one of the landlocked countries of South America crowded between Bolivia, Brazil and Argentina. The Paraguay river is navigable for some 1,800 miles and steamers come up to Asuncion, which is the chief port of the state. This makes up for lack of coast line or sea harbours.

Sebastian Cabot landed in Paraguay in 1527. By 1535, Paraguay had become a Spanish possession. In 1811 it gained its independence from Spain, and for a brief interval (1815—1840) remained under a dictator. After a series of battles with Brazil, Argentina and Uruguay, Paraguay adopted a constitution in 1870, which was recast after 1968

Executive power is exercised by the President, assisted by a Council of State The legislature is the bicameral chamber of Senators and Deputies, elected for a five year term.

About 75 per cent of the population is engaged in agriculture and allied pursuits, with cattle breeding as an important occupation. The most important agricultural crops are corn, cotton, beans, tobacco and citrus fruits The timber resources of the state are enormous. The chief exports are beef and other food products, quebracho (hard wood), hides and skins.

PERU

N: Republic of Peru A: 1,285,215 sq. km P: (1970) 13,586,300 C: Lima (3,155,800) R: Christian L: Spanish and Quechua Indian language. W: Metric M: Sol 112.85 S= £1 43 5 S=$1)

Peru, on the west coast of South America along the Pacific, has for its neighbours, Ecuador and Colombia in the north, Brazil and Bolivia in the east and Chile in the south Peru has a coast-line of some 1,410 miles. Its greatest width is about 800 miles. The Andes mountains dominate Peru. Some of the rarest species of animals, the vicuna, the llama, the alpaca and the cross-breed paco-vicuna, are found in Andean mountains, where they are now protected.

Peru was originally the seat of the famous Inca (Red Indian) Empire In 1533 Francisco Pizzarro, the Spanish conquistador raided Peru, looted the country and enslaved its inhabitants. In 1535, Pizarro established the capital city, Lima, and in 1537 the port Callao Pizarro was killed in wars with Incas and rival Spaniards, but peru remained a Spanish colony. Lima was the seat of the Spaish Viceroys until 1821, when Jose de San Martin, the Argentinian liberator captured it. In 1824 Simon Bolivar and Antonio J. de Sucre defeated the Spanish and gained independence for Peru.

On October 3, 1968 the civilian government of Fernando Belaunder Terry was ousted by a military *coup* led by Gen. Juan Velasco Alvarado. He suspended the constitution and formed an all-military cabinet.

The leading agricultural products are cotton wool, hides, skins, sugar, coffee, rice and potatoes Corn which is native to Peru is the staple food of the Indians, who also cultivate alfalfa Fishing industry is well developed and Peru is the world's most important producer of fishmeal. The mountains are rich in minerals and some mines dating back to the Incas, are even now worked. Peru is one of the leading producers of vanadium and silver. Some of the biggest copper mines in the world are located in Peru. The chief exports are cotton, fish products, petroleum, sugar, copper and iron ore.

PHILIPPINES

N: Republic of the Philippines A: 115,600 sq miles P: (1970) 36,849,000 C:Manila Administrative capital (1,330,780 (Quezon City--Official Capital (754,452) R: Christian and Moslem L: Philipino (Tagalog) and English W: Metric M: Philippine Peso (16.9P =£1 6.44P = $1)

Philippines consisting of a group of 7,109 islands is an archipelago, in the Pacific lying off the eastern coast of Asia. The island chain stretches 1,150 miles from north to south and is 690 miles wide. Only 462 of these islands are larger than one square mile in area. The most important islands are Luzon in the north and Mindanao in the south.

The Philippines were conquered by Spain in 1565 but were ceded to America by the Treaty of Paris (1898) which ended the Spanish-American War. During the Second World War, Japan conquered the islands but was driven out in 1945. Philippines became an independent republic on July 4, 1946.

The government organisation is similar to that of the United States. The President is elected by all literate voters of 21 years and over. Legislative power is vested in Congress comprising the Senate and the House of Representatives.

Forests cover 60 per cent of the islands and provide plenty of excellent timber, gums and resins. The main occupations are agriculture, livestock raising, lumbering, fishing and mining. Mineral resources include gold, silver, iron and chromite. The chief agricultural products are rice, manila hemp from abaca, copra and sugar cane.

POLAND

N: people's Republic of Poland A. 312,677 sq km. P: (1970) 32,605,000 C: Warsaw (1,309,999) T: Lodz (762,000) Cracow (585,000) R: Christian L Polish W: Metric M: Zloty (9 54Z=£1 3 68Z=$1

A people's republic of Upper Central Europe, Poland is bordered by the Baltic Sea, USSR, Czechoslovakia and East Germany.

Poland whose history goes back to the first century AD became a great power between the 14th and 17th centuries. During the 18th century the Polish territory was successively partitioned between Prussia, Russia and Austria Over run by the Austro-German armies in the First World War, Poland became independent in November 1918 During the Second World War, Nazi Germany and Soviet Russia attacked Poland and by a treaty partitioned the country (for the fourth time) between themselves. With the end of the Second World War, Poland again became independent but passed under the control of Soviet Russia.

Under the constitution of 1952, the highest authority in the republic is the Sejm (Parliament) elected for 4 years by popular vote. From its number, the Sejm elects the 15 members of the Council of State, the President of which is the head of State. Supreme executive power rests with the Council of Ministers.

Fortyfive per cent of the population is engaged in agriculture Chief crops are rye, wheat, barley, oats, potatoes, sugar beets, tobacco and flax. The country has vast resources of mineral wealth, particularly coal. besides iron, lignite, petroleum, natural gas, lead, potassium salts and zinc. Textiles, chemicals and metallurgy are old established industries, now owned by the State. New industries include automobiles, tractors, heavy machinery, shipbuilding and aircraft.

PORTUGAL

N: Republic of Portugal A: 92,072 sq. km. (including the Azores, Madeira and Porto Santo) P: (1970) 8,668,200 C: Lisbon (782,266) T: Oporto (310,437) R: Christian L: Portuguese W: Metric M: Escudo (71 E = £ 1 27.50 E = $ 1)

Portugal is a small rectangular territory in the south west corner of the Iberian peninsula. It is bounded on the north and east by Spain and the south and west by the Atlantic Ocean.

Portugal was an independent kingdom from the 12th century, until a revolution in 1910 drove out King Manuel II and proclaimed a republic. In 1928, Dr. Antonio Salazar became the Prime Minister and established a dictatorial regime, which ended only with his death in 1968. His successor, Dr. Marcello Caetano followed a more liberal policy Caetano's policy was not as progressive as hoped and the army took over the government on April 25, 1974. Gen. Antonio De Spinola, leader of the army junta, formed a provisioned government, until a National Constituent Assembly could be elected to draft a permanent contribution.

Gen Spinola initiated a major departure in government policy. He decided to give up all the colonial possessions of Portugal. The most important colonial possessions lay in Africa, where, for long, African freedom movement has been shaking the foundations of administration. The total area of the Portugal African colonies is 20,72,783 sq km. compared with 91,631 sq. km of Portugal and its adjacent Islands. The colonies had a population of 14,740,940 compared with 8,668,267 in Portugal. Angola is the largest in area (1,246,700 sq. km) among the colonies having a population of 5,673,046. It is 22 times bigger than Portugal itself Mozambique has the largest population numbering 8,233,834 in an area of 784,961 sq km. The other two Portuguese colonies are Macao in China with an area of 16 sq km and a population of 248,636 and Timor with an area of 14,925 sq-km and a population of 610,270 Portugal has also recognised the right of the Islands of Cape Verde, San Tome and Principe in the Atlantic Ocean to independence.

The West African colony, Guinea Bissau has already proclaimed independence. Portugal has formally recognised its independence. Guinea Bissau has been admitted to the United Nations in Sept. 1974.

Nineteen per cent of the country is forest, where pine, oak, chestnut and cork grow in abundance. Vineyards are found everywhere and wines, olive oil and fruits are produced in large quantities. The major minerals are coal, copper, kaolin, lithium and titanium. Textiles, chemicals, paper and glassware are the principal manufactures The main exports are wine, canned sardines, tuna, anchovies, resins and cork. Portugal leads the rest of the world in the production of cork.

PUERTO RICO

N: Commonwealth of Puerto Rico A: 3,423 sq. miles P: (1970) 2,713,147 C: San Juan (824,758) R: Christian L: Spanish and English W. United States System and local M: US dollar (2.60$=£1).

The island of Puerto Rico, lies 50 miles east of Hispaniola (Haiti and Dominican Republics) in the outer Caribbean.

Puerto Rico, was a Spanish colony for 400 years until 1898, when it passed to the USA under the Treaty of Paris. In 1952, USA granted autonomy to the island, under which it continued as a 'Commonwealth' associated with USA. Executive power is vested in a Governor elected for a four year term and a Cabinet of 10 secretaries The legislature is bicameral consisting of a Senate of 27 members and a House of Representatives of 51 members elected for four years. Puerto Ricans are citizens of USA with civil but not political rights The USA is responsible for the island's foreign policy and defence.

From a purely agricultural country, Puerto Rico is fast changing to an industrial economy. The main crops are sugar, tobacco and coffee. Industries include cigars, alcohol, chemicals and household appliances. Tourism is an important source of revenue.

QATAR

N: The Sneikdom of Qatar A: 4,000 sq miles P: (1970 est.) 112,000 C: Doha (80,000) R: Wahabi Muslims L: Arabic W: Imperial, Metric and local M: Qatar/Dubai ryal 11.45 Q/Dr=£1 4 41 Q/Dr=$1)

Qatar, which was the largest Trucial, State in point of area, now independent is a 100 mile long tongue of land jutting into the Persian Gulf. It is surrounded almost on the three sides by the Persian Gulf. Saudi Arabia lies to the south.

The Sheik is the absolute ruler, though certain social and economic reforms have been carried out. Qatar's only economic activity is the oil industry, which fetches around £ 70 million yearly.

RHODESIA

N: Rhodesia A: (150,820 sq miles) P: (1971 est) 5,500,000 (Africans 5,220,000 Europeans 249,000 and others 26,000 C: Salisbury 439,000 R: Tribal and Christian. The Asians are almost equally Muslim or Hindu). L: English (official language) Bantu languages W: Imperial M: Rhodesian dollar R$=£0.58 R $1= US $1.40)

Rhodesia lies in south Central Africa with Mozambique to the east. Zambia to the north west, Botswana to the south west and South Africa to the south

Rhodesia was first occupied by the British South African Company under a charter from the British Government. The first settlers, supported by a constabulary, drove out the natives from northern and eastern Rhodesia. In 1893, the rest of Rhodesia was occupied. The natives rebelled and attacked the white settlers, killing a number of them. The British troops retaliated, killing a lot of natives and crushing the rebellion. In 1923 Rhodesia was converted into a colony of Britian and was federated with Nyasaland to form the Central African Federation of Nyasaland and Rhodesia. The federation was dissolved in 1963. Northern Rhodesia was formed into the independent state of Zambia and Nyasaland became the independent state of Malaur in 1964. Southern Rhodesia dropped the prefix 'Southern' and became plain 'Rhodesia'.

The 1961 Constitution for (Southern Rhodesia drawn up by the British Government, provided for ultimate rule by the majority, which meant a government of the natives. In order to forestall such a contingency, the whites, led by Ian Smith, the Prime Minister of Rhodesia, made a Unilateral Declaration of Independence, (UDI) on Nov 11, 1965. Britain insisted on the principle of No Independence Before Majority Rule, (NIBMAR) and passed the Southern Rhodesia Act (1965), declaring void any constitution passed independently by Rhodesia. A stalemate ensued.

Rhodesia cut the Gordian knot by discarding all ties with Britain and proclaiming itself an independent sovereign republic in 1969. A settlement however, was reached with Britain in Nov. 1971 under which the Republican Constitution of 1969 will be maintained but the number of African seats will increase as more Africans attain voting qualifications

At present, legislative power is vested in a legislature, consisting of the President and Parliament. The Parliament consists of a Senate and a House of Assembly The Senate comprises 23 members, 10 Europeans and 10 Africans and three nominated by the President. The House of Assembly consists of 66 members, 50 Europeans and 16 Africans

Rhodesia is rich in minerals notably gold, asbestos, chrome and coal The Wankie Colliery is the largest coal mine in the world. Industries include food processing, metals, textiles and engineering Maize, groundnuts, cotton and tobacco are the chief crops, tobacco, being the most important one.

ROMANIA

N: Socialist Republic of Romania A: 237,500 sq km. P: (1970) 20,252,541 C: Bucharest (1,574,536) T: Constanta (238,118), Ploiesti (217,341) R: Christian L: Romanian W: Metric M: Leu 14 40 Leu-£1 5 5 Leu-$1

Romania, a Balkan state in South Eastern Europe lies in between the Soviet state of Russia, Ukraine and Moldavia and Bulgaria, Yugoslavia and Hungary. Part of its eastern boundary is the Black Sea The Carpathian mountains cut into the north east portion

Modern Romania was formed in 1861 by the merger of the old Dacian kingdom with the principalities of Wallachia and Moldavia dominated by Turkey. In 1877 Romania proclaimed independence from Turkey and was recognised as an independent kingdom by other European powers in 1881, with King Carol I as Head of the State. In 1886 Romania became a constitutional monarchy with a bicameral legislature. Romania has had a troubled history since 1886. Having helped Russia against Turkey in 1877 78 it was defeated by the Austro-German alliance in the First World War. With the defeat of Austria Germany in the First World War, Romania again became independent and added to itself the provinces of Bessarabia, Bukovina, Transylvania and Banat. During the Second World War, Marshal Antonescu who dominated

Romanian politics, forced Romania to help Nazi Germany against Soviet Russia in 1941. In 1944 Antonescu was overthrown by King Michael I with Soviet help and Romania rejoined the Allies. King Michael abdicated under Communist pressure in 1947. In the same year the Soviet troops occupied Romania and a People's Republic was formed.

The new constitution adopted in August 1965 vests supreme executive, legislative and judicial authority in the Grand Assembly, elected for a four year period and consisting of 465 members. The State Council elected by the Grand National Assembly, from among its members, is the permanent executive body and is subordinate to the Assembly.

RWANDA

N: Republic of Rwanda A: 26,338 sq. km P: (1970) 3,667,000 C: Kigali (25,000) R: Tribal, Christian and Moslem L: French and Kinyarwanda (official languages) W: Metric M: Rwanda Franc (240 RF=£1 92.10 RF=$1).

Rwanda is a republic in Central Eastern Africa, just below the equator. It is bordered by Zaire, Uganda, Tanzania and Burundi. The population of Rwanda includes Watusi, Bahutu and Batwa tribes.

The Republic of Rwanda, formerly part of the Belgian Trusteeship of Rwanda-Urundi in east central Africa became independent in 1962. Urundi, now called Burundi also became independent in the same year.

Executive power is exercised by the President assisted by a cabinet of 13 ministers. Legislation is carried out by the Legislative Assembly of 147 members elected by universal adult suffrage.

The economy is agricultural and remains mainly at the subsistence level. Coffee, cotton and pyrethrum are the principal crops. Minerals include tin ore, tantalite, wolfram and beryl. Industry is undeveloped. Livestock-raising is widespread and hides and skins are exported.

SAN MARINO

N: Republic of San Marino A: 61 sq. miles P: (1969 est.) 19,000 C: San Marino (4,500) R: Christian L: Italian W: Metric M: Italian Lire.

San Marino, the oldest state in Europe, is situated on the slope of Mount Titano in the Apennines on the Adriatic side in the heart of Italy. San Marino has its own coinage and postal stamps, but Italian and Vatican currency are in general circulation.

It claims to be the oldest state in Europe, having been founded in A.D. 301. The Communists took over the administration of the state in 1945 but were expelled in 1957.

San Marino is governed by a Grand Council of 60 members elected every five years by popular vote. Two members of the Grand Council are appointed to act as Regents every six months. The Regents exercise power in conjunction with the Council of State which is made up of ten departments.

The principal products are wheat, wine and olives. Industries include, textiles, cement, paper, leather and woolen goods.

SAUDI ARABIA

N: Kingdom of Saudi Arabia A: 850,000 sq miles (approx) P: (1964 est.) 6,000,000 C: Riyadh Royal Capital (169,000) Jeddah Administrative capital (148,000) T: Mecca (159,000), Medina (72,000) R: Moslem L: Arabic W: Metric M: Saudi Riyal (10.75 R=£1 4.14 R=$1)

Saudi Arabia occupies nearly four fifths of the Arabian peninsula with the Red Sea on the west and the Persian Gulf on the east. Jordan and Iraq lie in the north and Kuwait in the north east. Yemen is in the south west and South Arabia in the south. It comprises four provinces, the former Sultanate of Nejd, the Kindom of Hejaz, with its dependencies and Asir and El Hasa, now known as the Eastern Province. In the province of Hejaz are Medina, where Mohammed the Prophet was buried on June 7, 632 and Mecca, the birthplace of the Prophet. There is a great mosque in Mecca, which shelters the sacred shrine, the Kaaba. On one side of the Kaaba, is the black stone believed to be given to Abraham, by Archangel Gabriel. This shrine is the place of pilgrimage for all Muslims the world over.

The Sultanate of Nejd, long an independent state, came under Turkish rule in the 18th century. In 1913, Mohammed Iban Saud founder of the Saudi dynasty overthrew the Turks and captured the Turkish province of Hasa. In 1925, he occupied Hejaz and in 1926 most of Asir. On November 2, 1964 King Saud abdicated and Crown Prince Faisal was proclaimed king.

The king rules in accordance with the *Sharia* or sacred law of Islam. A Council of Ministers is appointed by the king

The decisions of the Council of Ministers are subject to royal approval

Saudi Arabia has great oil wealth, second only to that of Kuwait in the Middle East The oil concession is held by the Arabian American Oil Company (ARAMCO) which is owned by several American companies The royalties and taxes on oil, form the major source or public renvenue. Other minerals, most of them recently discovered, are gold, silver and iron. All the same, Saudi Arabia remains an agricultural country whose main products are dates, wheat, barley, fruit, hides and wool.

SENEGAL

N: Republic of Senegal A: 196,192 sq. km. P: (1969 est) 3,800,000 C: Dakar (600,000) R: Moslem (80 per cent) Christian and Tribal L: French (official language) Wolof, Toucouleur and other native tongues W: Metric M: CFA Franc (661CFA–£1 254 CFA $1

Senegal lies on the West African bulge. It is bounded on the north by Mauritania, on the east by Mali and on the south by Guinea and Portuguese Guinea. In the southern part of the country, the independent nation of Gambia forms a narrow enclave extending some 200 miles into the interior

Formerly a French colony, Senegal became a self-governing republic within the French community in 1958. In 1959 it joined with the former French Sudan to form the Mali Federation The Federation was declared an independent political entity in June, 1960. Two months later, it was dissolved, Senegal retaining its independence In Dec 1962, the Prime Minister failed in an attempt to overthrow the President and was arrested, tried and imprisoned. This led to the President combining in himself the offices of the President and Premier. The 1963 constitution as amended in 1967 confirms a Presidential system of government

The President is elected by popular vote for a 5-year term and is eligible for re-election The National Assembly, the unicameral legislature, is also elected by universal suffrage for a 5 year period

Agriculture and livestock raising are chief industries There are important deposits of aluminium phosphate Developing industries include food processing, chemicals and cement Groundnut accounts for 75 per cent of the total value of exports.

SIERRA LEONE

N: Sierra Leone A: 27,925 sq. miles P: (1970 est.) 2,500,000 C: Freetown (127,917) R: Tribal, Christian and Moslem minorities L: English (official language), Krio, Mende and Temne (tribal tongues) W: Metric M: Leone (2L=£1 0.77L=$1).

Sierra Leone (meaning mountain of the lion) was the name originally given to this area by Portuguese sailors mainly on account of the thunder-storms around its coastal peaks. It lies on the bulge, along the west coast of Africa, between Guinea and Liberia.

Formerly under British rule, Sierra Leone became independent in 1961. The new constitution abolished the division of the country into a colony and a protectorate. Elections were held in 1962 and won by the Sierra Leone People's Party, led by Sir Milton Margai. With the death of Sir Milton in 1964, troubles started brewing. On two occasions the Army intervened and civilian government was restored in 1967, under Siaka Stevens. The new government faced rough weather until 1971, when a republican constitution was, at last adopted and Stevens became the Executive President.

Sierra Leone is a republic within the British Commonwealth The Executive President is assisted by a cabinet headed by the Prime Minister The House of Representatives, consists of 85 members, elected by universal suffrage and 12 paramount chiefs.

The economy is based on agriculture and mining. Principal products are industrial diamonds, iron ore, bauxite, kola nuts, palm kernels, cocoa and ginger.

SIKKIM

N: Kingdom of Sikkim A: (2,828 sq miles P:* 1970 est 194,000) C: Gangtok 12,000) R: Mahayana Buddhism. State Religion; Hindu. There are also Jains Muslims and Christians, L: Sikkimese, Nepalese and Lepcha W: Imperial and local M: Indian Rupee (£1-Rs. 18 97 $1 -Rs. 7.28 .

Sikkim is a small mountainous state in the eastern Himalayas, bounded by Tibet, India, Nepal and Bhutan The main trade routes between India and Tibet pass through Sikkim. The Lepchas from Assam, appear to have been the original settlers of Sikkim In the 16th century the Bhutias from Tibet came and settled in Sikkim. In the 18th and 19th centuries, Gorkhalis of Nepalese extraction, poured into Sikkim, reducing the Bhutia-Lepcha community to a minority. The ruler or the Chogyal of Sikkim belonged to the Bhutia tribe which was closely allied to the Lepchas. The Chogyal always favoured his own community in complete disregard of the majority community. This has always fomented troubles.

---

* The population includes Nepalese, Bhutias, Lepchas, and Tsongs.

Until India became independent in August 1947, Sikkim was under British paramountcy. Under a treaty signed in Gangtok on December 5, 1950, the Government of India exercises responsibility with regard to the defence, external relations and communications of Sikkim.

Trouble broke out in April, 1973, when the Ghorkali majority community launched an agitation for securing democratic rights. As the agitation turned violent, the Government of India, intervened and took over the administration. Negotiations between the Chogyal and the party leaders which were opend by the Government of India, have ended amicably. The Chogyal has agreed to introduce democratic reforms and adequate representation for all communities.

Lok Sabha on Sep 4, 1974 gave its approval to the Constitution 36th Amendment Bill conferring Sikkim an "associate" status with the Indian Union.

Forests occupy one-third of Sikkim but are largely unexploited. Sikkim produces rice, corn and millet, cardamom, oranges and apples. Cardamom and oranges form important items of export.

SINGAPORE

N: Republic of Singapore A: 225.6 sq miles P: (1970 Census) 2,074,500 (Chinese 1,579,800) C: Singapore City (1969 est) 2,033,500 R: Buddhist, Taoist, Moslem, Hindu, Christian, Confucianism L: Malay (National language). Malay, Chinese (Mandarin), Tamil and English official languages) W: Imperial and local M: Singapore dollar (7 34 S.d £ 1 2 81Sd -$1)

Singapore is an island situated at the southern tip of the Malay peninsula with which it is connected by a cause-way across a three-fourth mile wide strait. The island is 27 miles wide and 14 miles long.

Founded in 1819 by Sir Thomas Stamford Raffles, Singapore was a British colony until 1959 when it became an internally autonomous state within the Commonwealth. At a referendum in September 1962, over 70 per cent of the population of Singapore voted to accept the proposed terms to establish the Federation of Malaysia. The association proved politically unworkable and in August 1965 Singapore withdrew from the Federation and formed a separate republic.

The President is the Head of State. The legislature comprises a Parliament elected by universal adult suffrage. A Cabinet presided over by the Prime Minister, runs the government.

The country is an entrepot for Malaya and other southeast Asian states The chief exports are rubber and tin. Industries include tin smelting, rubber goods, lumber working and ship-building

SOMALIA

N: Somali Democratic Republic A: 246,155 sq. miles P: (1970 est.) 4,000,000 C: Mogadishu (1966 est) 172,000 R: Moslem L: Somali (National language Arabic, spoken language, English and Italian (official written languages) M: Metric M: Somali Shilling (17 02 Sh=£1 6.93=$1)

A republic of north east Africa, the Somali Republic or Somalia is bounded by the Gulf of Aden on the north, the Indian Ocean on the east, Kenya, Ethiopia and French Somaliland on the west.

The Somali Republic was formed by the union of the former Italian Trust Territory of Somalia and the former British Somaliland. The 33 members of the former British Somaliland legislative assembly met in joint session with the 90 members of the Somalia legislative assembly on July 1, 1960 to elect a provisional President as Head of State. The President designated a Premier to form a government. In October 1969 President Shermarke was assassinated and the army and police took control of the state On the first anniversary of the revolution, in Oct. 1970, the Head of the State, Gen Siejad declared Somalia 'a socialist state'.

The Supreme Revolutionary Council, consisting of all former army officers, headed by the President is the ultimate authority in all matters. The Council is assisted by a cabinet of 14 Secretaries of State. A new constitution is being drawn up.

Somalia is an undeveloped agricultural country. Seventy five per cent of the population is nomadic, moving about with their flocks of sheep, goats and camels Settled agriculture is now being developed along the river valleys Prospecting for oil and other minerals is going on steadily.

SOUTH AFRICA

N: Republic of South Africa (Republick Van Suid Afrika) **A:** 472,359 sq miles **P:** (1970 Census) 21,282,000--Whites 3,779,000, Africans 14,893,000, Asiatics 614,000 Coloureds 1,996,000 **C:** Cape Town-Legislative capital, (625,740), Pretoria-Administrative capital (492,577) **T:** Johannesburg (1,364,523), Durban (682,910), Transkei (Bantu Homeland) Area: 15,831 sq. miles. Population: 1,751,327 (Bantu 1,734,116-Whites 9,556, Coloureds 7,515, Asians 10 Capital: Umtata. **R:** Christian **L:** Afrikaans and English (official languages) Xhosa, Zulu and Sotho (principal Bantu languages) **W:** Imperial system—being changed to Metric **M:** Rand (1.954 R=£1 0.75 R=$1)

The Republic of South Africa lies at the southern tip of the continent of Africa. Bechuanaland Botswana lies in the north and Mozambique in the NE. It includes the original white colonies of the Cape of Good Hope, Natal, Transvaal and Orange Free State. The Orange River Basin covers about half the area The administrative capital is Pretoria and the judicial capital is Bloemfontein South-west Africa (Namibia) is a mandated territory administered by the Republic of South Africa.

The territories now comprising the Republic of South Africa were originally Dutch and English colonies in South Africa. Transvaal and Orange Free State, consisting of the Boers citizens of Dutch extraction were independent republics After the discovery of gold in Transvaal in 1886, many outsiders, mainly English, called by the Boers as *Uitlanders* Outlanders rushed into Transvaal This resulted in a war between the English and Dutch colonists, called the Boer War (1899 1902 in which the British defeated the Boers. Eight years thereafter, on May 31, 1910, the independent states of Transvaal and Orange Free State were incorporated into the Union of South Africa as a dominion of the British Empire. The Union became a republic on May 31, 1961 leaving the British Commonwealth with effect from March 15, 1960.

The country follows a policy of *Apartheid*, the separate development of racial groups-and in 1959 the Promotion of Bantu self Government Bill was passed, under which Bantu territories are to be developed as self-governing states within the Republic In January 1962 Transkei was declared to be the first of the Bantu Homelands to qualify for self-government and in December 1963 a law was passed to give Transkei considerable internal freedom In November 1963 the first Transkei parliament was elected.

The President of the Republic is elected by the members of the Senate and the House of Assembly Executive power is carried out by an Executive Council appointed by the State President. The Senate (54 members) includes representatives of each Province and one representative of the Cape Province coloured people. Members of the Senate must be white The House of Assembly (170 members) includes six members representing South-west Africa (Namibia) and four members representing the Cape Province coloured people Bantu and Asians are not eligible to vote

The major agricultural products are cotton, wheat, tobacco, sugarcane and, citrus fruits. With vast mineral resources, South Africa is the biggest gold and diamond producing country in the world and one of the biggest in uranium About 47 per cent of the world's total production of gold is from South Africa. Other minerals include coal, copper tin, manganese, iron lead and chrome

SPAIN

N: Spanish State **A:** 504,750 sq. km **P:** (1970 33,918,000 **C:** Madrid 3,121,000) **T:** Barcelona (1,742,000) Valencia (648,000 Seville (546,000 **R:** Christian **L:** Spanish **W:** Metric **M:** Peseta (168.1 P=£1 64.5 P=$1)

Spain is bounded on the north by France and Bay of Biscay and on the west by Portugal. To the east is the Mediterranean, and twenty miles to the south, Africa

With the discovery of America for Spain by Columbus in 1492, the conquest of Mexico by Cortes, and Peru by Pizarro, Spain became a great colonial empire. In Europe, Spain extended into Italy and Netherlands With the defeat of the Spanish Armada by England in 1588, Spain ceased to be the leading European power and Netherlands became independent. For a brief period Napoleon dominated Spain Thereafter, Spain was by turns an absolute monarchy, a constitutional monarchy, a republic and again a constitutional monarchy, Primo de Rivera became dictator of Spain under King Alfonso XIII in 1923 In 1930 the dictatorship was revoked by King Alfonso but owing to the pressure of public opinion, Alfonso himself had to abdicate in 1931, when a leftist republic was proclaimed. The new republic expropriated big landlords, dissolved religious orders, expelled the Jesuits and secularised the schools A popular election in 1936 confirmed the leftist regime by giving the leftist Popular front a majority in the Cortes (legislature).

But the army officers in Morocco, most of whom were conservatives, headed a revolt against the leftist regime in July 1936, under Francisco Franco, and formed a provisional government. The new Republic, reacted with vigour and a three year war ensued. The Soviet Union, France and Mexico actively supported the Republic while Franco was supported by Italy and Germany. The Civil War ended on March 28, 1939, when Franco conquered Madrid. Franco was named Caudillo or the leader of the nation, Chief of State, Commander-in-Chief and Prime Minister of Spain. The Law of Succession drawn up in 1947 and amended in 1966 defines Spain as traditionally a monarchy and states that General Franco will be succeeded by a King.

Legislation is initiated by the Council of Ministers and General Franco has the power of veto The Council of State, a partly elected, partly nominated body, is the supreme consultative organ advising the head of State.

SRI LANKA

N: Republic of Sri Lanka A: 65,610 sq. km. P: (1971 Census est) 13,000,000--Sinhalese 8,885,000, Ceylon Tamils 1,377,000, Indian Tamils 1,328,000, Ceylon Moors 740,000 C: Colombo (563,705) T: Jaffna (99,800), Kandy (75,900), Galle (71,700) R: Buddhist, about 60 per cent and Hindus, 20 per cent Moslems and Christians are minorities L: Sinhalese, Tamil and English W: Imperial M: Ceylon Rupee (15 57 R=£1 5 99 R=$1.)

Ceylon, now officially called Sri Lanka, is an island about fifty miles east of the southern tip of India, Separated from India by the shallow Palk Strait, Sri Lanka looks very much like a pendant attached to the Indian peninsula Sri Lanka is bounded on the west by the Palk Strait and the Gulf of Mannar, on the north and east by the Bay of Bengal and on the south by the Indian Ocean. The population is predominantly Sinhalese, about 70 per cent. Tamils from India make up the second largest group, about 22 per cent The official language is Sinhalese, an offshoot of the Indo-European family. Tamil, however is also used for official purposes in Tamil speaking areas

Sri Lanka became independent in 1948 as a member of the British Commonwealth. In 1959, Solomon Bandaranaike, the Prime Minister was assassinated. This marked a turning point in the history of Independent Sri Lanka. In 1960, Mrs. Bandaranaike took over as Prime Minister. The 1965 elections brought a national government under Dudley Senanaike into power. In the 1970 elections, a three-party leftist coalition led by Mrs. Sirimao Bandaranaike came into power. Following an armed insurrection by extremist communists, a state of emergency was declared in Sri Lanka on March 16, 1971. The rebellion was ruthlessly put down.

A new constitution was adopted by the Constituent Assembly on May 22, 1972. The Constitution renamed Ceylon at the *Republic of Sri Lanka*. The Constituent Assembly which adopted the constitution will continue as the National Assembly, for another six years. The National Assembly is the supreme legislative body which in future will be elected on adult franchise for a term of six years.

The present Prime Minister Mrs.Sirimao Bandaranaike is confirmed as the Prime Minister for another six years The Prime Minister is the *de facto* Head of State and appoints the President of the Republic as the titular head The President's term is four years.

The judiciary is independent but cannot question the validity of the laws passed or acts done by the National Assembly. Basic human rights have been formally recognised, but with supreme power vested in the National Assembly, these rights can at any time be altered or destroyed by the majority party in the assembly. Though Buddhism is not declared as the State religion, the State is bound to 'protect and foster' it. Sinhalese is the Official language Tamil translations are however permitted

Sri Lanka's major products are agricultural—tea, rubber and coconuts. Tea and rubber estates were originally established by British planters. In Dec. 1971, a major portion of British plantations was nationalised. Sri Lanka is not self sufficient in the staple food, rice, much of which is imported. The commercially important mineral is graphite, although there are deposits of iron ore, monazite, ilmenite, limestone clay and kaolin.

SUDAN

N: Democratic Republic of the Sudan A: 2,505,805 sq km P: (1970, 15,503,000 C: Khartoum (255,740) T: Omdurman (252,430), Port Sudan (108,930), Khartoum North (123,050) R: Moslem, Tribal and

Christian L: Arabic and Sudanese W: Local weights and measures being replaced by Metric system M: Sudanese Pound (0.867 S P=£1 0.35 S P=$1).

A republic of north east Africa, Sudan is bounded by the Arab Republic of Egypt on the north, the Red Sea and Ethiopia on the east, Kenya in the south east Uganda and Dem. Rep of Congo on the south. Central African Republic and Chad lie to the west. Libya touches the north west corner The White Nile flows through the middle of the country and joins the Blue Nile at Khartoum. The Sudanese population consists of Arabs, Negroes and Nubians of mixed Arab and Negro blood

Sudan originally under Egypt, liberated itself as a consequence of the Mahdist movement (1884—85). Two outposts however were retained by Egypt--Wadi Halfa on the Nile and Suakin on the Red Sea coast. The Dervish Rule, which followed the Mahdist uprising was so corrupt that Lord Kitchener with an Anglo Egyptian army, overthrew the Mahdist regime in 1898. Thereafter, Sudan, was jointly governed by Britain and Egypt In 1955, the Sudanese people were asked to vote on the question of union with Egypt or complete independence for Sudan. Having voted for complete independence, a five member Supreme Commission (Council of State) was established as a provisional government on January 1, 1956 Following a military *coup d'etat* in 1958, the Army took control of the State A Supreme Council of Armed forces was set up which ruled until October 1964, when it was overthrown by a civilian revolution. Following elections in May 1965, Muhammed Ahamed Mahgoub was elected Premier. On May 25, 1969 a military coup overthrew the government and a 10 man Revolutionary Council took control of the State under Maj. Gen. Nemery

On July 19, 1971 a section of the army led by communists, captured the government and drove out Nemery. Nemery, however came back to power in three days' time. The leaders of the Communist coup were executed. Under a referundum in Oct 1971 Nemery was installed as President and head of State Under the provisional constitution introduced in Aug. 1971, a People's Assembly is to draft and ratify a new constitution.

The main agricultural crop is durra (sorghum) which is the country's staple food. Other products include long-staple cotton, sesame, senna, peanuts, dates, hides and skins, chillies, beans and corn. Sudan is the world's principal source of gum arabic. Rice, peanuts, coffee sugarcane and tobacco are expanding items of agricultural production. Sudan's mineral wealth includes copper, gold, iron, and salt, much of which lies unexploited.

SWAZILAND

N: Kingdom of Swaziland A: 6,704 sq. miles P: (1966 Census) 395,138 C: Mbabane-administrative capital (15,000) R: Christian and Tribal L: English and si-Swati W: Imperial (Planning to convert to metric system) M: (South African currency) Rand (1.954 R=£1 0 75 R=$1)

Swaziland is surrounded almost by South Africa north west, south and south-east) with Mozambique to the east

Swaziland, formerly a British protectorate, attained its independence on September 6, 1968. It is a constitutional monarchy within the Commonwealth of Nations. The king of the Swazis, is the King of Swaziland and Head of the State.

The King nominates the Prime Minister. Supreme legislative power is vested in Parliament. It is composed of two Houses—House of Assembly and Senate

Sugar is the principal item in the economy, with citrus fruits, cotton, rice and maize, coming next. But the main wealth of the Swazis is cattle. There are considerable mineral reserves, especially, asbestos, iron and coal Iron is the country's main export in minerals

SWEDEN

N: Kingdom of sweden A: 449,750 sq. km. P: (1971) 8,091,782 C: Stockholm (740,486), Malmo (265,505 . Uppsala (127,448), Vasteras (116,648). R: Christian L: Swedish W: Metric M: Swedish Krona (12.50 Kr=£1 4.81 Kr=$1)

Sweden occupies the eastern half of the Scandinavian peninsula Its greatest length is 977 miles and maximum width 311 miles. It is bordered by Finland to the north east and Norway to the north-west and west The Baltic Sea and the Gulf of Bothnia lie to the east.

Sweden once formed part of the Scandinavian Union of Kalmar, but became independent between 1434 and 1523 It is a constitutional monarchy. The King acts through a Council of State responsible to the Parliament. The parliament (Diet) consists of two chambers - Upper Chamber and Lower Chamber.

More than half of Sweden is forests. With only 9.1 per cent cultivated area and 2.5 per cent pasture land, Sweden maintains a very high efficiency in agriculture. The chief agricultural products are cheese, butter, beef, pork, sugar-beets and vegetable oils. The country is highly industrialised with about 45 per cent of the working population engaged in industry, as against 10 per cent in agriculture. The main raw materials for industry are forest wealth and iron. There is an abundance of water power. Coal and oil have to be imported. Swedish steel is especially reputed for tool making. Sweden is one of the greatest producers of wood pulp, paper and lumber. Other important industrial products are automobiles, ships, aeroplanes, ball bearings, textiles and electrical goods.

SWITZERLAND

N: Swiss Confederation A: 41,288 sq. km. P: (1970) 6,269,783 C: Berne (162,400) T: Zurich (422,600), Basle (212,900) Geneva (173,600), Lausanne (137,400) R: Christian L: German, French, Italian and Romansh, official languages, spoken by 74,20,4 and 1 per cent of the population respectively. Many speak more than one language. W: Metric M: Swiss Franc (10 05 Fr=£1 3.85 Fr=$1

Switzerland, a federal republic in Central Europe, is bounded by France, Germany. Austria and Italy. It is a mountainous country, with the Alpine ranges rising from its bosom. The country is famous for its mountain lakes, The Rhine, the Rhone, and some tributaries of the Danube rise from the Alpine ranges in Switzerland.

Switzerland appears to have been first occupied by a Celtic tribe Helvetii Subsequently, the Alemanni and the Burgundi overran it Then came the Franks. In the 9th century, it became part of the Holy Roman Empire The Swiss Confederation obtained its independence from the Holy Roman Empire in 1648. Switzerland's independence was formally recognised by the Treaty of Westphalia, which ended the Thirty years' War. In 1798 Switzerland emerged as the Helvetic Republic or Helvetia, under the patronage of France. Since 1815 Switzerland has remained a completely independent country.

The Swiss Confederation has a republican federal constitution. Parliament consists of two chambers of equal status—the Council of States (Staenderat) and the National Council (Nationalrat). The 22 cantons enjoy much local authority being served through cantonal councils and counciis of government. The President is chief of the cabinet and also head of state.

Previously, there was no female suffrage in national elections and in most cantonal elections. In June 1970, the Lower House unanimously approved the federal decree proposing the introduction of the right of women to vote in federal matters by way of revision of Art. 74 of the Constitution.

SYRIA

N: Syrian Arab Republic A: 185,180 sq. km. P: (1970) 6,794,998 C: Damascus (813,008) T: (1969 Census Aleppo (589,482), Homs (197,645) R: Moslem and Christian L: Arabic, Kurdish (minority language) W: Metric M: Syrian Pound (11 25 SP=£1 4.30 SP=$1)

The Syrian Republic in the Middle East lies in between Turkey, Iraq, Jordan Israel and Lebanon. The Mediterranean Sea is on the west. The Orontes and Euphrates rivers pass through Syria The chief sea-port is Latakia

Syria, the seat of an ancient civilization was in the 19th century, part of the Turkish Empire. It became an independent state in 1920, but was administered by France under a mandate till 1944 On January 1, 1944 Syria became a fully independent sovereign republic When the United Arab Republic was established on February 21, 1958 by the union of Syria and Egypt, Syria lost its independent status and became a province within the UAR. But following an army coup in Sept. 1961, Syria proclaimed its independence and withdrew from the Union with Egypt. In February 1966 the military government was overthrown by another military coup. The new military junta appointed Noureddine Attassi, chief of state and Yussef Naven head of government.

In May 1967, Syria as an Arab state supported Egypt in its war with Israel. The result was that Israel attacked and occupied the Golan Heights, from which Syria had been bombarding Israeli villages. The cease-fire has put Israel in control of Golan Heights in Syria. In Nov. 1970, the Baath party led by Gen. Hajez Azad seized power. In March 1971, Hafiz Azad was elected President. In Sept. 1971, Syria joined Libya and

Egypt to form the Federation of Arab Republics.

Syria has a republican form of government with an appointed President. A Council of Ministers is responsible for the government of the country.

Agriculture and cattle-breeding comprise the major occupations of the people. The chief crops are cotton, wheat, tobacco and olives The only mineral found is oil. Industries include oils, soap, textiles, leather and tobacco.

TAIWAN

N: Republic of China A: 13,885 sq. miles P: (1971) 14,875,774 C: Taipei (1,818,237) T: Kaohsing (828,191 , Tainan (474,835) R: Buddhist, Confucianism, Christian, Moslem L: Mandarin Chinese W: Local and Metric M: New Taiwan Dollar (104 NT=£1 40 TN-$1)

The island of Taiwan, formerly known as Formosa, includes not only Taiwan proper, but also a number of small islands.

Originally Taiwan and adjoining areas were Chinese territory, but were ceded to Japan in 1895. After the Second World War, Gen Chiang Kai-shek occupied the island on behalf of Nationalist China. In 1950, the remnants of the Nationalist Party under Chiang Kai-shek made Taiwan the headquarters of the Nationalist Republic of China. In 1954 the USA and the Nationalist Government signed a mutual security pact, pledging American protection to Taiwan. In 1953 the offshore islands of Quemoy and Matsu were included in the protected area. Taiwan still claims to be the legal government of all China and is recognised as such by some countries, though in Oct. 1971, it lost its membership in the U N and its permanent seat in the Security Council to Communist China Taiwan's claim that it represents China, is now merely an amusing fiction.

The Head of State is the President who is elected by the National Assembly. There are five Yuans (Governing bodies), the highest legislative organ being the Legislature Yuan. It is composed of 773 members elected by the people on a regional and occupational basis. Elections are by universal adult suffrage.

The main agricultural products are rice, tea, sugar, sweet potatoes, ramie, jute and turmeric. Camphor secured from forests is a governmental monopoly. The industries comprise sugar, tobacco, iron works, glass and soap. Gold, silver, copper and coal are the principal minerals.

TANZANIA

N: United Republic of Tanzania A: 362,821 sq. miles (Mainland 341,150, Zanzibar and Pemba 1,021, Lakes Victoria, Tanganyika and Rukwa, 20,650) P: (1970 est) 12,896,000 C: Dar es Salaam (353,000, R: Tribal, Christian and Moslem L: Swahili and English (official languages) Tribal W: Metric M: Tanzanian shilling (18.65 Ts—£1 7.14 Ts=$1)

Tanzania consists of the two states of Tanganyika and Zanzibar. Tanganyika is situated in East Africa and lies in between Uganda, Kenya, Mozambique, Malawi and Zambia. Zaire is on the west and the Indian Ocean is on the east Zanzibar consists of the islands of Zanzibar, Pemba, Lamu, Manda, Patta and Siu.

Originally part of the German colony of East Arica, Tanganyika became a Trusteeship Territory under Britain in 1946 In 1961 it became a fully independent member of the British Commonwealth Zanzibar was formerly ruled by the Sultan of Zanzibar and was a British protectorate until December 10, 1963 It became internally self-governing on June 24, 1963 and fully independent on December 10, 1963. A revolutionary party seized power on January 12, 1964 and the Sultan was forced to leave the country. On April 25, 1964 an agreement was signed by the President of the Republic of Tanganyika and the President of the People's Republic of Zanzibar to form a new sovereign State called the United Republic of Tanganyika and Zanzibar. In April 1964 the United Republic of Tanganyika and Zanzibar was inaugurated. It assumed the name Tanzania. The new government of the Republic including both Tanganyika and Zanzibari ministers has exclusive control over foreign affairs, defence, police, immigration and foreign trade of the two member countries. In April, 1972 Sheik Karume, President of the ruling revolutionary party in Zanzibar and first Vice President of the United Republic was assassinated. Aboud Jumbe succeeded him as Vice-President.

Executive power is in the hands of a President who is elected by universal suffrage. The legislative organ is the unicameral National Assembly.

The economy is agricultural The chief cash crops are sisal, sugar, cotton and coffee. Cloves are grown on the islands, chiefly on Pemba Livestock is extensively raised. Diamonds are an important export. Other minerals include gold, tin and salt.

THAILAND

N: Thailand A: 514,000 sq. km. P: (1970 Prelim. census) 34,152,000 C: Bangkok (2,228,144) T: Nakon Ratchasima (1,547,000), Ubon Ratchatani (1,148,000) Ubon Dhani (1,118,000) R: Hinayana Buddhism and Moslem L: Thai W: Metric and Local M: Baht (54.63 B=£1 20.8 B=$1)

Thailand, formerly known as Siam, is a constitutional monarchy in southeast Asia and has for its neighbours, Burma, Laos and Khemr Rep. The Gulf of Siam lies to the south and east.

Thailand an ancient autocracy, became a constitutional monarchy in 1932 and had a troubled political history since Marshal Pibul Songgram assumed power, after a coup in 1947 but he was overthrown in 1957. In 1948 the country assumed its present name Thailand

On October 20, 1958 the Supreme Commander of the Thai armed forces, Marshall Sarit Thanarat seized power in a bloodless coup, proclaimed martial law, abrogated the constitution of 1932, and dissolved the National Assembly and the Council of Ministers. On October 21, 1958 all political parties were banned. Following the death of Marshall Sarit in 1963, General Thanom Kittikochorn became Prime Minister. In the face of continued political unrest, Field Marshal Kittikachorn proclaimed a military government in Nov. 1971.

Under the constitution of 1959, the King is Head of State. Executive power is vested in a Council of Ministers who must not be members of Parliament. The Parliament consists of two houses—a Senate of 164 members appointed by the King and a House of Representatives of 219 members-elected for 4 years by direct adult suffrage.

Agriculture is the mainstay of the country and engages 91 per cent of the population. The chief crop is rice, much of which is exported. Coconuts, tobacco pepper, cotton and teak are other items of agricultural exports. Minerals include coal, tin, iron, manganese, tungsten, antimony and mercury.

TOGO

N: Republic of Togo A: 56,600 sq. km P: (1970 census provisional) 1,956,000 C: Lome (100,000) R: Tribal and Christian L: French (official language) and Tribal languages W: Metric M: CFA Franc (661 CFAF=£1 254 CFAF=$1)

The Republic of Togo, formerly Togoland lies on the western coast of Africa forming a narrow strip stretching from the coast of Gulf of Guinea (Atlantic Ocean) north to Upper Volta, with Ghana to the west and Dahomey to the east.

Formerly a United Nations Trust Territory administered by France, Togo became an autonomous republic within the French Union in 1956 and achieved independence in 1950. On January 13, 1967 the government of President Nicolas Grunitsky was overthrown in a military coup led by Col. Etienne Eyadema. In January 1972, a referendum confirmed Gen. Eyadema as the President of the republic.

The principal products are coffee, cocoa, cotton, palm kernels, kapok and groundnuts. Togo's considerable natural resources are still largely undeveloed but phosphates are being mined in increasing quantities, and now form the country's principal export.

TONGA

N: Kingdom of Tonga A. 270 sq miles P: (1969) 83,630 C: Nuku'alofa (15,685) R: Christian L: English and Tongan W: Imperial M: $T (Paanga) ($T 2.10=£1 $T 0.83=$1)

Tonga consists of 150 islands and islets in the south western Pacific Ocean. The Tropic of Capricorn and the International Date Line cross each other very near Tonga. There are active volcanoes on four islands.

The histosy of Tonga dates back to the tenth century. Europeans discovered it in 1643. Further voyages of discovery took place in 1773 and 1789. Tonga became a British protected state in 1900 and independent state on June 4, 1970.

The head of state is the King. He is assisted by a Privy Council and a Cabinet.

Tonga is an agricultural country. Vegetables and fruits are grown for local consumption. The most important export crop is copra; next come bananas.

TRINIDAD AND TOBAGO

N: Trinidad and Tobago A: (1,980 sq. miles) (Trinidad 1864 Tobago 116 sq. miles) P: (1970 est.) 1,026,750 C: Port of Spain (86,150) R: Christian L: English W: Imperial M: Trinidad and Tobago dollar (4.80 T & T dollar=£1 1.84 T & T dollar = $1.)

Trinidad, the second largest and most southerly of the West Indian Islands (south of Windward Isles) lies very near the north coast of South America. Attached to it for administrative puroposes is the island of Tobago.

Formerly a British colonial possession Trinidad and Tobago became a member in 1958 of the newly established Federation of the West Indies and in 1959 achieved full internal self-government With the secession of Jamaica from the Federation in 1961, Trinidad and Tobago withdrew from the Federation. In 1962 it became an independent state within the Commonwealth

The British Queen is represented by a Governor General appointed by her on the advice of the Trinidad and Tobago government Legislative power is vested in the Parliament, consisting of the Senate and the House of Representatives. The executive is the Cabinet headed by the Prime Minister, leader of the majority party in the House of Representatives.

Crude oil is the main industrial product. Trinidad being the second largest oil producer in the Commonwealth. Chief crops are sugar, citrus fruits, bananas and rice. Important industries are oil refining and the manufacture of sugar. molasses and rum.

TUNISIA

N: Republic of Tunisia A: 164,150 sq. km P: (1966 Census) 4,533,351 C: Tunis (789,787) T: Sfax (100,000) R: Moslem L: Arabic (official language) and French W: Metric M: Dinar (1.22 d=£1 0.48 d=$1)

A republic of North Africa, lying on the Mediterranean coast, Tunisia is bounded by Algeria on the west and Libya on the east.

Formerly a French protectorate, Tunisia became autonomous in 1955 and achieved independence in 1956. The monarchy was abolished in 1957 and Habib Bourguiba became the first President. In Nov 1969 President Bourguiba was re elected for a third five year term.

Tunisia is an agricultural country, and produces wheat, barley, oats, dates, olives, apricots, almonds, figs, peaches, vegetables and alfa grass. The chief minerals are phosphates, iron. lead and zinc The principal exports are olive oil, wine, phosphates and grains,

TURKEY

N: Republic of Turkey A: 780,576 sq. km. P: (1970 est) 35,666,549 C: Ankara (1,208,791) T: Istanbul (2,247,630), Ismir (520.686) Adana (351,655) R: Moslem L: Turkish, Kurdish, Arabic W: Metric M: Lira (TL 36.48=£1 TL 14=$1)

A republic of southeastern Europe and Asia Minor, Turkey is bounded by the Aegean Sea, the Black Sea, the USSR, Iran, Iraq, Syria, the Mediterranean Sea, Greece and Bulgaria. Turkey occupies a strategic position, linking as it does Asia and Europe, at the Straits of Bosphorus, between the Mediterranean and the Black Sea The major portion of Turkey lies in Asia, in what is called Asia Minor being bordered in Asia, to the east by USSR and Iran and to the south by Iraq and Syria The small territory that Turkey holds across the Bosphorus, in Europe is bordered by Greece and Bulgaria,

Asiatic Turkey, that is, Anatolia, was the seat of one of the earliest civilizations known. In the 7th century B C the Greeks founded the city of Byzantium on the site of present-day Istanbul Byzantium fell to Romans in AD 156. With the partition of the Roman Empire into Eastern and Western empires, Byzantium became the capital of the Eastern Empire. The Roman Emperor Constantine rebuilt Byzantium as Constantinople The Ottoman Turks conquered Constantinople in 1453 and established the Ottoman Empire By the first decade of the 20th century the Turkish Empire, under Sultan Abdul Hamid II had already earned the nickname 'the Sickman of Europe' by its unprogressive domestic policies and diplomacy In 1908, the young Turks, virtually dethroned Sultan Hamid and attempted a series of liberal reforms. But the First World War, in which Turkey joined with the Central Powers (Germany and Austria) practically ended the activities of the young Turks. A new party under Mustafa Kemal Pasha (Ataturk) with the patronage of the Allied Powers drove out the old Sultan in 1922 and formed the Republic of Turkey (1923). Kemal Ataturk carried out far reaching reforms, including the formation of a democratic parliament in 1924 and the secularisation of the State in 1928. Ataturk died in 1938 and was succeeded by Ismet Inonu as Premier. In 1965 the Justice Party led by Suleyman Demul came into power. In 1966, Gen. Gursel fell ill and was succeeded by Gen. Sunay as President. In the 1969 elections, the Justice Party again came into power. But in 1971, the army intervened again and formed a new government under Nihat Erim.

Under the 1961 Constitution, Turkey is a democratic republic with elections by universal suffrage held normally every four years. The President is elected by the Grand National Assembly for seven years. The President appoints the Prime Minister. The Prime Minister appoints the Council of Ministers.

Agriculture maintains about 75 per cent of the population, the chief products being tobacco, wheat, cotton, olive oil, sugar and gums. Turkey is the world's second largest producer of Sultana resins. Sheep and cattle abound in the plateau of Anatolia and provide mohair of which Turkey is again the second largest producer. Tobacco, spirits, liquors, salt and tea are State monopolies. The main minerals are iron ore, copper and chromium, in the last of which, Turkey is one of the world's leading producers. Oil is also produced in the south east. There is a refining capacity of 4.8 million tons a year.

UGANDA

N: Republic of Uganda A. 91,076 sq. miles P: (1969 Census) 9,526,237 C: Kampala (331,000) T: Jinja (100,000) R: Christian, Tribal and Moslem L: English and Luganda (the most important tribal language) W: Metric M: Uganda shilling (18.65 Us=£1 7.14 Us=$1).

Uganda, an equatorial state in East Africa, is bounded by the Sudan on the north, Zaire in the west, Rwanda and Tanzania on the south and Kenya on the east. The country is divided for administrative purposes into Buganda and the Northern, Eastern and Western Regions.

Formerly a British protectorate, Uganda became independent in 1962, and a republic on October 9, 1963 with the Kabaka of Buganda as President and Milton Obote, leader of the Uganda People's Congress as Prime Minister. Rivalry between the Kabaka and Obote led to continuous unrest. In 1966, Obote led a pre-emptive coup against the Kabaka, who fled to Britain where he died In 1969, a new constitution was introduced and Obote remained secure in power. But in 1971 Gen. Idi Amin drove out Obote and took over the government. He has established a military government in the country.

The economy is agricultural Main products are cotton and coffee. Tea, sugar vegetable oils, oil seeds, hides and skins are exported.

UNITED ARAB EMIRATES

N: United Arab Emirates A: (estimate) 32,000 sq. miles P: (1972 est.) 192,900 C: Abu Dhabi (60,000) R: Moslem L: Arabic W: Imperial, Metric and local M: Bahrain Dinar (in Abu Dhabi) and equal to 10 Qatar/Dubai ryals (11.45 Q/D ryals=£1 4.40 Q/D ryals=$1)

The United Arab Emirates consist of seven Sheikdoms in the Persian Gulf-Abu Dhabi, Dubai, Sharjah, Umm al Quwain, Ajman, Fujaria and Ras al Khaimah. The first six Sheikdoms signed the Union agreement on 2nd Dec 1971. Ras al Khaimah joined the Union only in February 1972

These States were known as the Trucial States,* because they had signed truces with Britain for protection. Before the British came to the Persian Gulf, pirates controlled the Gulf and the small sheikdoms had neither the naval strength nor the resources to put down the pirates In 1820, the British navy moved in, rounded up the pirate ships and burnt the entire pirate fleet in the harbour of Ras al Khaimah. The Gulf was thus freed of piracy. Then a series of truces were signed with the various sheikdoms, under which Britain recognised their ruling rights and the sheiks accepted British protection. In 1971, Britain left the Persian Gulf, leaving the sheikdoms to fend for themselves. The original proposal for a union included Bahrain and Qatar, but these two States stayed out, as they felt they were strong enough to look after themselves.

The highest authority in the Union is the Gulf Supreme Council, consisting of the rulers of the seven sheikdoms, with a President and a Vice-President There is also a Union Cabinet and a National Consultative Assembly which met for the first time Feb. in 1972. Every ruler has absolute authority over their subjects.

Abu Dhabi, which is the capital of the Union is the largest of the Emirates in area. With a population estimated at 60,000, Abu Dhabi produce 600,000 barrels of oil per day. No wonder that, in per capita income Abu Dhabi tops all other countries. Abu Dhabi is linked to the mainland by a bridge which cost a million pound sterling to build. Dubai is the main port of the Union and now has the largest harbour in the Middle East. It has a population of 60,000 out of which only 20,000 are original Arab Dubaians. It has a daily production of 100,000 barrels of oil. Dubai has acquired notoriety as a centre of smuggling. Sharja, with a population of 32,000 Ras al Khaimah with 24,000, Fujarah with 9,000 Ajman with 4,200 and Umm al Quwain with 3,700 are the other constituent units of the Union.

---

* Bahrain and Qatar also had signed truces with Britain and were therefore counted among the Trucial States, previously.

UNITED KINGDOM

N: The United Kingdom of Great Britain A: (excluding Northern Ireland) 88,764 sq. miles P:(1971 Census)53,821,364 C: London (7,379,014) T: Birmingham (1,013,366), Glasgow (897,848,) Liverpool (606,834), Manchester (541,468), Sheffield (519,703), Leeds (494,971), Edinburgh (448,895), Bristol (425,203), Teesside (395,477), Coventry (334,839) R: Christian L: English Welsh (spoken in Wales) and Gaelic (in parts of Scotland and Northern Ireland) W: Imperial M: Pound Sterling (£) (£1=US $ 2 61 £0.38=US $1

A constitutional monarchy, the United-Kingdom comprises the Island of Great Britain and Northern Ireland, together with many small islands. It is separated from the coast of Western Europe by the English Channel to the south and by the North Sea to the east. The northern and western shores are washed by the Atlantic Ocean.

Great Britain. It is the largest of the islands forming the United Kingdom It comprises England, Scotland, Wales, the Isle of Man and the Channel Islands. St. George's Channel and Irish Sea lie between UK and Ireland. Britain is much less than half the size of France or Germany and would fit forty times into the United States of America Yet, for hundreds of years this island has had great influence in the world. From its shores men set out to lay foundations of what is now the United States of America, to develop Canada, Australia, New Zealand, the Indian continent and great areas of Africa. British institutions and methods of government have set the pattern for lovers of freedom everywhere. And to-day, Britain's Queen is Head of a family of several million people, spread all over the world.

On January 22, 1972 Britain was formally admitted to the European Economic Community, better known as the European Common Market. Britain's economic policy both at home and abroad will in future be decided in consonance with the policy of the ECM.

Great Britain is a constitutional monarchy. The sovereign is the Head of State and monarchy is hereditary. Actual power is vested in Parliament which is the Supreme legislative body in Great Britain. The Parliament consists of two house—the House of Lords and the House of Commons. The House of Lords consists of (1) hereditary peers (2) life peers (3) peers elected for the duration of the Parliament and (4) the Archbishops of Canterbury and York and 24 bishops. The full House consists of about 1,080, though the average attendance is about 190. The House of Commons has 630 members divided as follows: England 511, Wales and Monmouth 36, Scotland 71, Northern Ireland 12. The executive power is vested in the cabinet under a Prime Minister. The Queen nominates the leader of the majority party in Parliament as the Prime Minister who in turn forms the cabinet. The cabinet is responsible to the Parliament. The highest judicial body is the House of Lords. As a judicial body, the House of Lords consists of the Lord Chancellor and Law Lords who hear appeals and pass judgements in the name of the whole House of Lords. Below the House of Lords are the Court of Appeal (Civil), the Court of Criminal Appeal and the High Court of Justice.

For purposes of local government, England and Wales are divided into 61 major administrative counties, which include the county Greater London and 82 minor county boroughs. In each county the Crown is represented by the Lord Lieutenant, who is assisted by a Sheriff, an Under Sheriff, a Clerk of the Peace who is generally the Clerk to the County Council, coroners and other officers. The counties are administered by popular elected county councils. A councillor is elected for three years. The county councils co-opt a prescribed number of aldermen, either from their own body or from outside it. Aldermen hold office for six years, half of them retiring every third year.

The main central authority for London is the Greater London Council created under the London Government Act of 1963. The Council exercises jurisdiction over the London City Corporation and 32 Greater London Boroughs, although the city council (London) has autonomous jurisdiction in several matters, such as sanitation, police, bridges, justice etc.

Legal government in Scotland under various Acts of Parliament is now in the jurisdiction of burghs. Each burgh has a town council, consisting of a provost or lord provost, bailies and councillors. The provost is the head of the Scottish municipality and holds office for three years. Bailies are selected from the councillors from among their own number. These act as magistrates. There are 200 burghs in Scotland, of which four are counties or cities, 20 large burghs and 176 small burghs.

Britain is one of the world's leading industrial and exporting countries. Chief industries are iron and steel, engineering, chemicals, electronics, motor vehicles, aircraft, textiles, clothes and other consumer goods. Its coal mines yield about 200 million tons annually. Although Britain's agriculture and trawlerfishing are highly mechanised, half of the country's food supplies and most of its raw materials are imported.

Northern Ireland. Northern Ireland is situated in the northeast of Ireland and forms part of the United Kingdom of Great Britain and Northern Ireland. It comprises six Ultser counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone The rest of the island is occupied by the Republic of Ireland.

Northern Ireland was constituted as a semi-independent province of the United Kingdom under the Government of Ireland Act, 1920, as amended by the Irish Free State consequential provision) Act, 1922. Under the Act, a separate parliament and executive government were established for Northern Ireland. Northern Ireland, comprises six administrative counties with the county boroughs of Belfast and Londonderry. The administrative counties are further divided into 12 boroughs, 24 urban districts and 31 rural districts.

Legislative functions are exercised by Parliament which consists of the Senate and the House of Commons. Parliament has powers to legislate in its own area alone. All other affairs of State such as foreign policy and defence are reserved to the UK Parliament. Executive power exercised by the Governor and his Ministers. Northern Ireland returns 12 members to the Parliament of UK and thus becomes an integral part of the United Kingdom.

Following the continuous fights between the Protestant majority and the Roman Catholic minority and the inability of the North Ireland Government to ensure peace, the British Government, on May 24, 1972, assumed direct control of Northern Ireland for a period of one year.

Agriculture is the main occupation in Northern Ireland. Cattle, sheep, hogs, eggs, poultry, potatoes, milk and its by-products account for an annual output of £ 317,800,000. Linen, ropes, twines, rayon, clothing, tobacco, aircraft and shipping form the main branches of industry.

UNITED STATES OF AMERICA

N: United States of America A: 3,615,123 sq. miles P: (1970 Census) 241,720,134 C: Washington D. C. (2,861,000) T: New York (11,529,000), Los Angeles (Calif) (7,032,000), Chicago (6,979,000), Philadelphia (4,818,000), Detroit (4,200,000) San Francisco (3,110,000), Boston Mass (2,754,000), Pittsburgh (2,401,000), Cleveland (2,064,000), St. Louis (2,363,000), Baltimore (2,071,000), Minneapolis (1,814,000), Milwaukee (1,404,000), Houston (1,985,000), Buffalo (1,349,000), Cincinnati (13,85,000), Dallas (1,556,000), Kansas City (1,257,000), Seattle (1,422,000 , Miami (1,268,000), New Orleans(1,046,000), San Diego (1,358,000), Denver (1,228,000), Atlanta(1,390,000),Indianapolis (1,110,000), San Jose (1,065,000), San Beruandino Riverside (1,143,000 , St. Petersburg Fla (1,013.000) R: Christian and Jewish L: English W: Imperial and American M: US Dollar ($1-£ 0.38)

The United States of America is a federal republic composed of 50 states of which all except one—Hawaii islands are in mainland America.

History. The United States of America, which cover the central part of North America, grew out of the British Colonies that were established in North America in the first half of the 18th century. British colonies were originally established on the Atlantic Coast The first British colonial establishment was at Jamestown (Virginia) in 1607. Then followed the historic settlement of the Pilgrim Fathers at Plymouth (Massachussets) in 1620. Thereafter, other colonial settlements were founded in different parts of the country.

The colonies became entangled in wars almost from the beginning. They became first involved in the colonial wars between England and France. Then they found themselves against their own mother country, England England had long treated the colonies as its appendages When the colonies prospered, England saddled with war debts, regarded them as milch cows. This attitude was reflected in the Stamp Act (1765) which set a tax on publications in the colonies, and the Townshend Acts (1767) which levied a tax on imports into colonies. The colonists objected to being taxed without their consent. 'No taxation without representation' became their battle cry. Owing to the dissatisfaction of the colonists, the Townshend Acts were repealed in 1770 but England retained a tax on tea, as a token of its suzerainty over the colonies This provoked the so-called Boston Tea Party (1773) in which a number of militant colonists in Boston, boarded a British ship and dumped all the tea chests into the sea. England retaliated with punitive measures and a state of open conflict between the mother country—England—and the American colonies, ensued

The **First Continental Congress**, sponsored by Virginia, decided to stand up to Britain, as an organised unit and formed the Continental Army. George Washington later to became the First President of USA was appointed Commander-in Chief, A number of engagements between the British and Continental Armies followed with indifferent results.

On July 4, 1776 thirteen colonies adopted the **Declaration of Rights** and thus assumed independence. The thirteen were: Massachussets, New Hampshire, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina and Georgia.

As the war dragged on, the Continental Army gained the upper hand The battle of Saratoga (1777) marked a signal triumph for the Colonies. In 1778, the French forces came to the help of the Colonies and the British, despite many victories were forced back to York Town, where Lord Cornwallis, Commander of the British forces, surrendered on October 19, 1781. The surrender at York Town ended the American War of Independence.

Under the Articles of Confederation (1781) the revolting colonies formed a Union of States By the **Treaty of Paris** (1783) England formally recognised the United States

Thereafter the United States expanded to the west, embracing within the Union, the comparatively new States --Ohio Kentucky, Tennessee and Vermont. The Louisiana Purchase of 1803, added another new State to the Union. A number of other acquisitions and annexations followed and by the middle of the 19th century, the United States extended across America from the Atlantic Coast to the Pacific.

But by that time, a new question had arisen to darken the political horizon of USA. The southern states, mainly composed of cotton plantations, insisted on keeping up the slavery system while the northern states, which had no need of Negro slaves wanted the abolition of slavery.

The issue came to a head in 1860, when Abraham Lincoln was elected President Lincoln was a confirmed abolitionist of Negro slavery. The southern states, which insisted on slavery decided to secede from the Union and formed the Confederate States of America. This secession started the Civil War between the seceding southern states and the unionist north in 1861. In 1863, Lincoln issued his Emancipation 'Proclamation, which liberated all American Negroes from bondage.

The Civil War continued. By 1865, the Civil War ended in complete victory for Lincoln and the northern states In 1865, Lincoln was assassinated by a southern fanatic.

The assassination was a political futility. Lincoln had already achieved the two goals he cherished—the integrity of the Union and the abolition of slavery.

After the Civil War, USA rapidly expanded politically and economically In 1867 USA purchased Alaska from Russia The Spanish American War of 1898, resulted in the acquisition of Puerto Rico and control over Phillippine Islands in the Pacific. The Hawaiian Islands over which USA had established a commercial hold were ultimately annexed. The Monroe Doctrine, laid down by President Monroe prevented European nations from interfering in American politics and thus paved the way for the establishment of a US hegemony over all America.

Economically USA progressed so rapidly that it amazed the rest of the world Millionaires of the calibre of Rockefeller, Carnegie, Morgan and Ford emerged. Gigantic combines dominated the American economy.

USA's participation in the First World War and the victory of the Allies made it a world power. The end of the Second World War saw the emergence of USA as one of the super-powers of the world.

The Union originally comprised 13 States, to which 7 were added subsequently. Thirty other States, which were formerly territories were also admitted into the

Union as full states, thus making up 50 States in all, apart from the District of Columbia. Each state has its own constitution. The state constitutions provide for a legislature of two Houses, (except Nebraska which has only one House), a Governor and a judicial system of its own. The State governments can deal with all matters which are not reserved to the federal legislature The following table gives the existing states of the Union with their area, population and capital.

State	*Area (sq. mile)*	*Population (1970)*	*Capital*
Alabama	51609	3444165	Montgomery
Alaska	586400	302173	Juneau
Arizona	113909	1772482	Phoenix
Arkansas	53104	1923295	Little Rock
California	158693	19953134	Sacramento
Colorado	104247	2207259	Denver
Connecticut	5009	3032217	Hartford
Delaware	2057	548104	Dover
District of Columbia	69	756510	Washington
Florida	58560	6789443	Tallahassee
Georgia	6424	4589575	Atlanta
Hawaii	83557	768561	Honolulu
Idaho	56400	11113976	Boise
Illinois	36291	5193669	Springfield
Indiana	56290	2825041	Indiana polis
Iowa	82264	2249071	Des Moines
Kansas	40395	3219311	Topeka
Kentucky	40395	3643180	Frankfort
Louisiana	48523	992048	Baton Rouge
Maine	33215	3922399	Augusta
Maryland	10577	5689170	Annapolis
Massachu-setts	8257	8875083	Boston
Michigan	58216	3895069	Lansing
Minnesota	84068	2216912	St. Paul
Mississippi	47716	467399	Jackson
Missouri	69686	694409	Jefferson City
Montana	147138	1483791	Helena
Nebraska	77227	488738	Lincoln
Nevada	110540	737681	Carson City
New Hampshire	9304	7168164	Concord
New Jersey	7836	1016000	Trenton
NewMexico	121700	18190740	Santa Fe
New York	12166	5082059	Albany
North Carolina	52712	617761	Raleigh
North Dakota	70665	10652017	Bismarck
Ohio	41222	2559253	Columbus
Oklahoma	69919	2328284	Oklahoma City
Oregon	96981	2091385	Salem
Pennsylvania	96981	11793909	Harrisburg
Rhode Island	1214	949723	Providence
South Carolina	31055	2590516	Columbia
South Dakota	77047	665507	Pierre
Tennessee	42244	3924164	Nashville
Texas	267338	11196730	Austin
Utah	84916	1059273	Salt Lake City
Vermont	9609	444330	Montpelier
Virginia	40815	4648494	Richmond
Washington	68192	3409169	Olympia
West Virginia	24181	1744237	Charleston
Wisconsin	56154	4417933	Madison
Wyoming	97914	332416	Cheyenne

Government. USA is a federal Republic. Each of the 50 member states exercises a measure of internal self-government. The federal government has exclusive jurisdiction in foreign relations, foreign and inter state commerce, postal service, currency and the armed forces while other powers are vested in the states. Amendment to the constitution is provided by Art. 5 of the constitution.There have so far been 25 amendments The federal government is made up of three separate and independent institutions-the executive, the legislature and the judiciary Executive power is vested in the President who holds office for four years. He is elected, along with a Vice-President, by elections from each state, equal to the whole number of senators and representatives, which the state may send to the Congress. The President is the Commander-in Chief of the Army, Navy and Air Force Legislative power is vested in the Congress which consists of a Senate and a House of Representatives. The Senate consists of two members from each state, chosen by popular vote for six years, one-third retiring or seeking re-election every two years. The House of Representatives consists of 435 members elected every second year. The number of representatives for each state is determined on the basis of decennial census. Judicial power is vested in the Supreme Court of the United States The Supreme Court consists of 9 judges including the Chief Justice. The judges are appointed by the President with the approval of the Senate and hold office during good behaviour.

Economy. The country is the world's leading economic power. Chief imports are petroleum, non-ferrous metals, coffee, machinery, textiles and newsprint In most other materials USA is self-supporting Leading industries are steel, motor vehicles, aerospace industries, telecommunications, chemicals, electronics and all kinds of consumer goods. The chief agricultural products include cereals, cotton and tobacco. Some of the large farm surpluses are given as gifts to poor countries. Agricultural farms are divided into commercial farms and other farms. Commercial farms include large-scale, highly mechanised farms, commercial family farms and small scale farms Other farms comprise mainly part-time farms where work is carried on only during specific seasons.

UNION OF SOVIET SOCIALIST REPUBLICS (USSR)

N: Union of Socialist Soviet Republics A: 22,402,200 sq km. P: (1971 est.) 243,900,000 C: Moscow (7,061,000) T: Leningrad (3,950,000), Kiev (1,632,000), Tashkent (1,385,000), Baku (1,261,000), Kharkov (1,223,000), Gorky (1,170,000), Novosibirsk (1,161,000), Kuibyshev (1,047,000), Sverdlovsk (1,026,000), Minsk (916,000), R: (There is no state recognised religion, but the Constitution guarantees freedom of worship) Christian, Moslem and Jewish L: Russian and other provincial languages (120 languages are spoken in the USSR) W: Metric M: Rouble (2.16 R=£1 0.9R=$1).

USSR the largest country in the world in point of area stretches across the continents of Asia and Europe. The country extends for over 6,000 miles from the Baltic to the Pacific Ocean, and for 3,000 miles from north to south In the west it reaches the Gulf of Finland in Europe and in the east the North Pacific Ocean in Asia. In the far north east the Bering Strait separates it from Alaska The major rivers of USSR in the European area are the Dneiper flowing into the Black Sea, the Volga and the Ural into the Caspian Sea, the Don into the Sea of Azov, the Western Dvina into the Baltic and the Northern Dvina into the White Sea In the Asiatic area, are the rivers Ob, Yenisei and Lena each over 2,000 miles long and flowing into the Arctic Ocean and the Amur which flows into the Pacific Ocean. The Caspian Sea, the south end of which is in Iran, is the world's largest salt inland sea. Others are Aral Sea, Lake Baykal, Lake Balkhash and Lake Ladoga.

History. The Russian Empire, under the Czars, comprised the major portion of the territory now forming the USSR The Czarist regime was autocratic although there was a legislature --the Duma— elected on a limited franchise. The inefficiency, nepotism and corruption of the Czarist Government led to a popular revolt on March 12, 1917. The revolt was led by the members of the Duma, who were disgusted with the broken promises of the Czar and with the disastrous fate of the Russian armies in the First World War. The leaders of the Duma were actively supported by councils (Soviets) of workers and soldiers, deputies in Petrograd and other cities and later by councils (Soviets) of peasants all over Russia. On March 15, 1917 the Czar abdicated. The provisional committee of the Duma, with the co-operation of the Petrograd Soviet, appointed a provisional government under Kerensky, which declared Russia a republic on September 14, 1917. Very soon a struggle for power rose between the Soviets of workers in cities and the supporters of the provisional government. The Soviets having gained a majority in the principal cities and in many of the army units, staged the famous October Revolution on November 7, 1917 and arrested the members of the provisional government. The party of Soviets having become the majority party (Bolsheviks) had no difficulty in disposing of the minority party (Mensheviks) and assuming power for themselves on behalf of the All-Russian Congress of Soviets. They formed a new government, the Council of People's Commissars, headed by Lenin. On January 31, 1918, the third All-Russian Congress of Soviets, issued a declaration of the rights of the toiling and exploited masses, and proclaimed Russia a Republic of Soviets of Workers, Soldiers' and Peasants' Deputies. On July 10, 1918, the fifth Congress adopted a constitution for the Russian Socialist Federal Soviet Republic (Russian S.F.S.R) The Soviet regime was opposed in many quarters and a civil war ensued. As a result of the civil war Ukraine, Byelorussia and Transcaucasia joined the RSFSR by a treaty in 1922. In May, 1925 the Uzbek and Turkmen Soviet Republics joined the Union, and the Tadzhik Soviet Republic in December 1919.

On December 5, 1936, a new constitution of the USSR was adopted by which the Kazakh Soviet Republic and the Kirghiz Soviet Republic were made constituent members of the Union and the Transcaucasian Republic was split up into three separate republics, the Armenian Soviet Republic, the Azerbaijan Soviet Republic and the Georgian Soviet Republic, each of which became independent members of the Union. In September 1939 Soviet troops advanced into Poland as far as the Curzon line and incorporated the occupied Polish territory into the Ukrainian and Byelorussian Soviet Socialist Republics. On March 31, 1940, Russia attacked Finland and compelled her to cede the territory round about Karelian Isthmus. This was added to the Soviet Socialist Republic of Karelia to form the Karelo Finnish Soviet Socialist Republic which was admitted into the Union as the 12th Union Republic On August 2, 1940, the Moldavian Soviet Socialist Republic became the 13th member of the Union. On August 3, 1940, Estonia, Latvia and Lithuania which were annexed by Russia in the course of World War II were admitted as the 14th, 15th and 16th republics of the Union. On July 16, 1956 the Karelo Finnish Republic, constituent member of the Union was reduced to the status of an autonomous unit within the RSFSR. The number of federating (constituent) units of the Union was thus reduced to 15. The Soviet Union consists of 15 Union Republics which include within their boundaries 20 Autonomous Republics, 8 Autonomous Regions, 10 National Districts, 6 Areas and 105 Regions. A brief description on each Union Republic is given below:

Russian SFSR The Russian Soviet Federal Socialist Republic embraces the whole of Russia, covering 76 per cent of the Soviet Union territory and contains 50 per cent of the population. It is the dominating unit of the Federation.

Ukrainian SSR is the most densely populated area of the Republics. It is the chief wheat producing area of the Soviet Union. The Donets Basin has a huge storage of coal, iron and other metals.

Byelorussian SSR otherwise known as White Russia is situated on the western border of Soviet Russia. Principal crops are flax, grain and potatoes. Industries include agricultural machinery, machine tools, woollen textiles, linen, paper, leather, glass and cement.

Azerbaijan SSR is the chief oil-producing area of the Soviet Union. Long staple cotton and white wheat are cultivated here. Industries include iron, steel, cement and fertilisers.

Georgian SSR contains the largest manganese mines in the world. Grain and grapes are grown here. The republic is rich in timber resources.

Armenian S S R cultivates cotton and tobacco. Copper and lead are mined. The population is 88 per cent Armenian.

Uzbek SSR contains the finest cotton lands in the Union. A high quality caracul fur is produced for export. Minerals include coal, sulphur, copper and oil.

Turkmen SSR in Central Asia produces cotton, grain and oil seeds. Oil, coal, sulphur, barite, lime and gypsum are also found. The Kara Kum desert occupies four-fifths of the territory.

Tadzhik SSR (Tadzhikistan) comprising former regions of Bokhara and Turkestan is an agricultural area. Cotton, grain, sugarcane and a variety of fruits are grown here Three-fourths of the population are Tadzhiks, mostly Sunnis, speaking an Iranian dialect.

Kazakh SSR has vast deposits of coal, oil, iron, tin and copper. Its extensive pasture lands were converted into grain-growing lands in 1953-54.

Kirghiz SSR on the border of Sinkiang (China) is purely an agricultural area. Tobacco, cotton, rice and sugar beets are grown here. Cattle and horse breeding is a major occupation.

Moldavian SSR is an agricultural region and grows wheat, barley, corn, plums, apples, peaches, walnuts, tomatoes and water melons. Textiles and electrical equipment industries have been developed here.

Lithuanian SSR on the Baltic is also an agricultural area, where cattle and hogs are bred Dairying is well-developed.

Latvian SSR on the Gulf of Riga in the Baltic Sea has extensive timber and peat resources It produces rubber goods, dyes, fertilisers and glassware in addition to agricultural products.

Estonian SSR situated on the Baltic Sea between Gulf of Riga and Finland, manufactures textiles and railway materials and is a shipbuilding centre. Its shale refining industry is said to be the biggest in the world.

Union Republics of USSR

Republic	*Area sq. miles*	*Population (Est 1968)*
Russian SFSR	6,593,391	127,911,000
Ukrainian SSR	232,046	46,381,000
Kazakh SSR	1,064,092	12,678,000
Uzbek SSR	158,069	11,266,000
Byelorussian SSR	80,154	8,820,000
Azerbaijan SSR	33,436	4,917,000
Georgian SSR	29,911	4,659,000
Moldavian SSR	13,012	3,484,000
Lithuanian SSR	26,173	3,064,000
Kirghiz SSR	76,642	2,836,000
Tadzhik SSR	54,019	2,736,000
Armenian SSR	11,306	2,306,000
Latvian SSR	24,695	2,298,000
Turkmen SSR	188,417	2,029,000
Estonian SSR	17,413	1,304,000

Constitution and Government. The highest organ of political power in the USSR is the Supreme Soviet of the USSR which exercises legislative functions It consists of two chambers, with equal powers, elected for a term of four years-the Soviet of the Union and the Soviet of Nationalities The highest executive authority is the Council of Ministers appointed by the Supreme Soviet. The Presidium of the Supreme Soviet elected at a joint meeting of both chambers acts as the supreme state authority in the intervals between the sessions of the Supreme Soviet. It is responsible to the Supreme Soviet. The Council of Ministers is also responsible to the Supreme Soviet and in the intervals of sessions to the Presidium of the Supreme Soviet Legislation by decree is vested in the Council of Ministers. Each Republic and Autonomous Republic has its own Supreme Soviet and Council of Ministers.

The Communist party with 14.4 million members-1970 plays a leading role in government and is a substantial policy-making body. The supreme organ of the Party is the Congress which lays down policy and elects the Central Committee The Central Committee forms the Politbureau and the Secretariat In September 1953 Nikita Krushchev was designated First Secretary of the Central Committee In 1964, Nikita Krushchev was replaced as Chairman of the Council of Ministers by A. N Kosygin and as Secretary of the Communist Party Central Committee by L. I. Brezhnev.

Economy. U S S R has a planned economy Planning is based on public ownership in industry and trade and on mixed public and collective or co operative ownership in agriculture

The First Plan drawn up by the State Planning Commission (Gosplan) was the 'Geolro' drawn up in 1920. This was to be the basis for the electrification of Russia and the development of her economy for 15 years In 1925 Gosplan started drawing up annual plans or estimates for the national economy. In 1927-29, th Gosplan drew up the First Five Year Plan for Russia. This Plan laid stress on the development of heavy industries especially in outlying areas which were rich in natural resources. The Plan was to have run from October 1, 1928 to September 30, 1933, but was declared as completed in December 1932, when 93.7 per cent of the planned industrial output had been carried out The Second Five Year Plan ran from 1933 to 1937. It aimed mainly at strengthening the defence capacity of the USSR and at increasing the output and quality of consumer goods. By 1937, the Plan for heavy industries was overfulfilled by four per cent but the target for light industries and consumer goods was not reached. The Third Plan for 1938 to 1942 envisaged a steady increase in the output of capital goods and consumer goods, though stress was laid on war industries The Plan was upset by Hitler's attack on Russia in June 1941. The Fourth Plan (1946 1950) exceeded the estimated gross output of industry by 2 per cent. The Fifth Plan (1951-55) laid stress on the development of agriculture, output of consumer goods and expansion of internal trade In 1955, the Gosplan was reorganised to consist of two State Commissions for planning and the Goseconomcommissya for current planning In 1957, the whole planning organization was overhauled. The State Committee for current planning Goseconomcommissya) was abolished and the Gosplan was given greater powers The reconstitution of the machinery for planning was followed by a Seven Year Plan to run from 1950-65

The Seven Year Plan provided for an all round increase in industrial output of 80 per cent out of which consumer goods would account for 62 65 per cent, labour productivity of 45 50 per cent and an agricultural output of 70 per cent

In October 1961, the 22nd Congress of the Communist party approved a 20 Year Plan ending in 1980. The 20 Year Plan envisages an increase on the 1960 level as follows: Electricity 900 per cent, Steel 400 per cent, Oil 500 per cent, Coal 200 per cent, Machinery 1,000 per cent, Fertilisers 900 per cent, Steel 400 per cent, Oil 500 per cent, Cement 500 per cent, Textiles 300 per cent, Leather and footwear 200 per cent, Grain 200 per cent, Milk 300 per cent and Meat 400 per cent. The Plan further envisaged a six hour day for a six day week, or 35 hours for a five day week by 1970. Housing, water, gas, heating, public urban transport and school meals are to be free by 1980. These and other measures are to Provide the material and technical basis of Communism A new Five Year Plan (the Eighth Plan) prepared by the 23rd Congresss of the Communist Party in April 1966 set goals of a 40 per cent rise in national income, 50 per cent in industrial output and 25 per cent in farm production.

The Eighth Five Year Plan ended wit an increase of national income by 41 pe cent, industrial income by 50 per cen and farm output by 21 per cent (Report by L. I. Brezhnev, March 30, 1971 to the 24th Congress). The Ninth Five Year Plan, presented by Alexi Kosygin, Chairman of the Council of Ministers on April 6, 1971, to the Twentyfourth Congress outlined the targets as follows: "In the five years, national income is to go up by 37-40 per cent and industrial output by 42-46 per cent. Provision is made for the production of the means of production in the five years to go up by 41-45 per cent and production of the articles of consumption by 44-48 per cent" (p 22).

UPPER VOLTA

N: Republic of Upper Volta A: 274,122 sq. km. P: (1970 est.) 5,485,971 C: Ouagadougou (110,000) R: Tribal, Christian and Moslem L: French (official language), Mossi, Samo, Gourounsi, (Native languages), W: Metric M: CFA Franc (661 CFA-£1 254 CFA-$1)

The Republic of Upper Volta is a landlocked state in West Africa surrounded by Mali, Niger, Dahomey, Togo, Ghana and the Ivory Coast.

Formerly a province of French West Africa, Upper Volta became a self-governing republic in 1958, achieving full independence in 1960. It elected to remain outside the French Community proper but signed a bilateral agreement on April 24, 1961, maintaining close ties with France. In January 1966, Col. Sangoule Lamizana deposed President Yameogo, dissoved the National Assembly, suspended the constitution and assumed the position of Chief of State.

Upper Volta is ruled by military decree. Local administration is through five "Departments" divided into 44 districts.

It is almost exclusively an agricultural country with 90 per cent of the population dependent on agricuture. Livestock raising is highly developed and accounts for 50 per cent of the country's exports. Principal market crops are cotton, rice, peanuts and karite. Industry is limited to local handicrafts.

URUGUAY

N: Eastern Republic of Uruguay A: 177,508 sq. km. P: (1970 est.) 2,886,100 C: Montevideo (1,350,000) R: Christian L: Spanish W: Metric M: Peso 1310 Pesos-£1 519 Pesos=$1 for Exports. 524 Pesos=$1 for Imports.

Uruguay is the smallest republic in South America. It lies on the north bank of the estuary of the River Plate with Brazil to the north and Argentina to the west. For administrative purposes the country is divided into 19 Departments each under a council of 5 members.

Uruguay, once a part of the Spanish Empire and later a province of Brazil became independent in 1825. Uruguan politics from the outset have been dominated by two rival parties the Colorados (Liberals) and the Balancos (Conservatives). The rise and fall of these parties affected the fortunes of the State. The system of government changed with the parties. Constitution was revised and re revised but the mounting economic problems were left to look after themselves. The dissatisfaction of the masses was reflected in the activities of the guerilla organisation, Tupamaros.

It was responsible for kidnapping the British Ambassador Geoffrey Jackson in 1971. Since 1968, the Tupamaros have managed 15 kidnappings. The Tupamaros, inspired by Che Guevara philosophy continues to be a threat to the internal security of Uruguay.

Executive power under the existing constitution is exercised by the President and a Council of 11 ministers elected every 5 years. The legislative body is the bi cameral General Assembly consisting of the Senate of 30 members and the Chamber of Deputies of 99 members.

Livestock raising is Uruguay's principal occupation and takes up 60 per cent of its total land area. The chief products are meat, wool, hides, corn, wheat, citrus fruit, rice, tobacco, oats and linseed. Important industries are vinery, meat-packing and textiles.

VATICAN CITY STATE

N: Vatican City State A: 108.7 acres P: (1970 est.) 847 C: Vatican City R: Christian L: Italian and Latin M: Italian Lira (See Italy. p. 203) 1515 Lira-£1 581 5 L=$1).

Vatican City, the City of the Pope is an independent sovereign republic and includes St. Peters' Cathedral, Vatican Palace and Museum, the Vatican Gardens and neighbouring buildings

For many centuries the Pope held temporal sovereignty over mid Italy, comprising an area of 16,000 sq. miles and extending from sea to sea. These areas were known as Papal States. In 1871, these territories were incorporated into the State of Italy, the sovereignty of the Pope being confined to the palaces of the Vatican and the Lateran in Rome and the Villa of the Castel Gandolfo. However, the dispute continued between the Pope and State and was ended by the treaty and concordat signed in 1929, between Cardinal Gasparri (on behalf of the Pope) and Premier Mussolini on behalf of Italy.

Vatican has its own railway station, postal system and police. The absolute head of the state is the Pope of Rome.

VENEZUELA

N: Republic of Venezuela A: 912,050 sq. km. P: (1971 est.) 10,778,071 C: Caracas (2,535,379) R: Christian (No State Religion) L: Spanish W: Metric M: Bolivar 11.45 B £1 4.40 B=$1.

Venezuela (sixth largest country in South America) is the northernmost state of South America and is surrounded by Guyana, Brazil and Colombia The Caribbean Sea bounds it on the north It has 72 islands totalling 14,650 sq. miles included in its territory. The largest of them, Margarita is an important pearl centre and is now the State of Nueva Esparta The Orinoco river with its tributaries waters nearly four-fifths of the country and is the second largest river system in America, next only to the mighty Amazon. Angel Falls, said to be the highest in the world (3212 ft in all) with one drop as much as 2,648 ft. is on a branch of the Caroni river. The main seaport La Guaira is 12 miles distant from the capital Caracas

Columbus first discovered the mouth of Orinoco river in Venezuela In 1499 Alonso de Ojeda discovered Lake Maracaibo and called the land Venezuela, meaning Little Venice, because most of the native houses he saw were built on piles in the lake. Venezuela was under Spanish rule till 1821 Then it became independent and joined the Colombian Federation. It seceded from the Federation in 1830 and became fully independent again. A new constitution, the twenty sixth in the country's history was promulgated in 1961.

Venezuela is a federal republic consisting of 20 states, a federal district, and two federal territories, each under a Governor. Executive power is vested in the President. The legislative organ is the Congress, consisting of a Senate and House of Representatives.

Venezuela is rich in minerals and is one of the world's leading producers of petroleum Other minerals are iron, copper, tin, manganese, diamonds and mica. The main agricultural produce is coffee, followed by cocoa, balata, tonka-beans and rubber. New industrial undertakings comprise steel, petro chemicals, plate glass and paper.

NORTH VIET-NAM

N: Democratic Republic of Vietnam A: 63,360 sq. miles P: (1969 est.) 21,300,040 C: Hanoi (1966 est.) (500,000) T: Haiphong (200,000) R: Buddhist, Taoist and Confucian L: Vietnamese W: Metric M: Dong (8 83 D=£1 3 5 D=$1) Tourist exchange rate 13.24 Dong=£1 5.52 Dong=$1.

The Democratic Republic of Vietnam (North Vietnam) is bordered by China, the Gulf of Tonkin, the South China Sea, South Vietnam and Laos

The history of Vietnam opens before the Christian era when it was settled by the Viets who emigrated from central China It was ruled by China till the 10th century A D. In the 13th century, Vietnam became free, having defeated the armies of Kublai Khan In the 15th century, the Portuguese occupied the area known as Cochin China, and the French, the territories of Tonkin and Annam. By the 19th century, Portuguese had vacated Cochin China which became part of Vietnam In 1863 Vietnam yielded Cochin China to the French and in 1884 became a French protectorate In 1940 Japan occupied Vietnam. During the occupation, the Nationalists formed an Independence League, the Viet Minh, headed by Ho Chi-Minh, the Communist guerilla leader. In August 1945 the Viet Minh forced out Bao Dai, former emperor of Annam, who was installed by Japan as the head of all Vietnam With Communists in power in Vietnam, France sent out an expeditionary force to reinstate Bao Dai. but suffered heavy losses and were finally defeated by Viet Minh. A ceasefire signed at Geneva in 1954 divided Vietnam into two; North Vietnam going to the Communists and South Vietnam remaining under French control. North Vietnam constitution, adopted in 1959 provided for a President elected by Parliament and a Prime Minister appointed by the President. The founder of Vietnam, Ho Chi Minh died in Sept 1969

Legislative power is vested in the National Assembly elected for a 4-year term by universal adult suffrage. The Assembly elects the President of the republic for a similar period. Executive power is exercised by the Council of Ministers.

The economy of N. Vietnam is governed by a five year plan. The chief crops are rice, wheat and maize. The vast forests yield bamboo and teak. There are coal deposits scattered over 750 sq. miles, producing about 2,500,000 tons annually. Other minerals are tin, zinc, chromium, iron and mercury

SOUTH VIET-NAM

N: Republic of Vietnam A: 173,809 sq. km P: (1970) 17,333,388 C: Saigon (1,763,692) T: Danang (427,827), Hue (209,217) R: Buddhist, Cao-Daists, Hoa-Hao, Confucian, Taoist, and Christian L: Vietnamese and Loo W: Metric M: Piastre-official exchange rate 660 P=£1 275 P=$1 (Other exchange rates also exist)

The Republic of Vietnam (S. Vietnam) is situated in the eastern part of South East Asia. It is bordered by N. Vietnam, the South China Sea, Khmer Rep.and Laos.

The 1954 Geneva Agreement divided Vietnam into two States—North Vietnam and South Vietnam On October 26, 1955 Ngo Dinh Diem, Premier of the interim government of South Vietnam proclaimed it a republic and became its first President. President Diem was elected for a second term in 1961. In 1964 Diem was assassinated and a military junta seized power Air Force Commander Nguyen Cao Ky became Premier on June 19, 1965. Elections to a Constituent Assembly were held in September 1966, and in April 1967 a new constitution was promulgated. In 1967, Nguyen Van Thieu was elected President. In 1971 President Thieu was elected unopposed for a second term.

According to the constitution of 1967, executive power is vested in a President elected for a 4-year term by direct popular vote The President is empowered to appoint a Premier without seeking the approval of the legislature, but the latter can oust cabinet members by a majority vote and the Premier by a two-thirds vote.

The chief products of S. Vietnam are rice and rubber. Maize, groundnuts and copra are also grown. Industry is confined to food processing, beverages and textiles.

WESTERN SAMOA

N: State of Western Samoa A: 1,097 sq. miles P: (1970 est) 135,000 C: Apia (25,391) R: Christian L: Samoan and English W: Imperial M: Tala. 1 tala =£ 0 57= US $1.5

Western Samoa comprises 4 islands in the South Pacific Ocean, the largest of them being Savaii and Upolu. The International Date Line passes very near to Western Samoa. Eastern Samoa (American Samoa) with its capital at Pago. Pago remains a dependency of the USA.

Western Samoa was a German colony between 1899 and 1914 It became a New Zealand trusteeship after the First World War and fully independent on January 1, 1962. A member of the Commonwealth, it is a semi-monarchical state with two tribal chiefs as joint Chiefs of State. Parliament comprises the Head of State and the Legislative Assembly. Tupua Tamasese Meaole, joint Chief of State died on April 5, 1963. H. H. Malietoa Tanumafili, the surviving joint Chief of State will continue as the Head of State for life. After his death, the Legislative Assembly will elect a new Head of State for 5 years.

The chief products are fish, copra, cocoa, bananas, taro, sweet Potatoes, bark, cloth and mats.

YEMEN (NORTH)

N: Yemen Arab Republic A: (75,000 sq. miles) P: (1970) 5,728,000 C: Sana (120,000) R: Moslem L: Arabic W: Local M: Yemeni Riyal (13R £1 4.69R=$1).

The state of Yemen is in the south west of the Arabian peninsula. It is bounded by South Yemen on the east, Saudi Arabia on the north and the Red Sea on the west.

The Yemen Arab Republic was established after the Imamate (Moslem theocratic monarchy) was overthrown by a *coup d' etat* on September 27, 1962. The Government of President Abdullah al-Sallal which took over power from the Imam was ousted in a coup led by dissident republicans on November 5, 1967.

The first permanent Constitution for the Republic was announced in Sana on December 28, 1970 by President Abdul Rahman Iryani during a meeting of the National Assembly. The Constitution provided for the establishment of a Consultative Council of 179 members, 20 of whom will be selected by the President and the rest elected by general franchise.

The Council will be the country's supreme legislative body and will be responsible for electing members of the five-man Presidential Council the chairmanship of which will be held in rotation.

The Constitution is regarded as a working compromise between the republican and royalist factions, in Yemen. As such, it has the blessing of Saudi Arabia which helped to bring about the reconciliation between the two parties. Significantly, one of the Constitution's provisions bans all political parties, a move apparently designed to deter tribal or ideological rivalries from spreading to the Consultative Council.

Other provisions of the Constitution cover human rights, equality for women and freedom of speech.

The country is rich in oil, which forms the major source of public revenue. The main agricultural products are coffee, dates, herbs and fruits. Hides and precious stones are exported.

YEMEN (SOUTH)

N: People's Democratic Republic of Yemen A: (excluding outlying islands) 178,932 sq. miles P: 1,500,000 C: As Shaab (formerly named Al Ittihas) T: Aden (100,000) R: Moslem L: Arabic W: Imperial and local M: South Arabian Dinar (1 SAD=£1 0.38 SAD=$1).

South Yemen Republic comprises a strategic port (Aden) and a large area of mainly desert territory in Southwestern Arabia. Its neighbours are North Yemen to the north west, Saudi Arabia to the north, and Oman to the east. The Arabian Ocean (Gulf of Aden) lies to the south.

South Yemen (formerly Aden and the Protectorate of South Arabia) became independent on November 30, 1967. Quattan Muhammed Al-Shaabi was appointed as the first President of the Republic. He formed a 11-man government on December 1, 1967, with himself as Prime Minister. On June 22, 1969 he resigned and was replaced by a 5-man Presidential Council headed by Salem Rubayyi.

A new constitution was promulgated on November 30, 1970 under which South Yeman was renamed People's Democratic Republic of Yemen.

The economy is chiefly agricultural. The main crops are sorghum, sesame, millets, wheat and barley. The Abyan long-staple cotton is now the country's main export.

YUGOSLAVIA

N: Socialist Federal Republic of Yugoslavia A: 255,804 sq. km. P: (1970 est.) 20,527,000 C: Belgrade (697,000) T: Zagreb (503,000), Skopje (228,000) R: Christian L: Serbo-Croat, Slovene and Macedonian are spoken W: Metric M: Dinar (44.30 D=£1 17 D=$1)

Yugoslavia, a Balkan State, is made up of six republics—Serbia, Croatia, Slovenia, Montenegro, Bosnia-Herzegovina and Macedonia. It lies between Austria, Hungary, Romania, Bulgaria, Greece and Albania, with a long sea-coast on the Adriatic side.

The modern state of Yugoslavia, has grown out of a petty principality Serbia. Serbia was a vassal of Turkey since 1389. It became an independent kingdom by the Treaty of Berlin in 1878. In 1913 as a result of the Balkan wars, Serbia expanded by the annexation of Old Serbia and Macedonia. When the Austrian Archduke Francis Ferdinand and his wife were assassinated at Sarajevo on June 28, 1914 by a Serbian, the Austrian government declared war on Serbia and this sparked off the First World War. When the Austro-Hungarian Empire, along with Germany and Turkey were defeated in the First World War, Serbia regained independence, adding to itself the former Austro-Hungarian provinces of Croatia, Dalmatia, Bosnia, Herzegovina, Slovenia, Voyvodina and the independent state of Montenegro, under Peter I of Serbia as King. The new state was named Yugoslavia. Monarchy continued in Yugoslavia, until World War II, when Germany invaded Yugoslavia and King Peter II fled to London. A national liberation movement under Josip Broz, better known as Marshall Tito drove out the German invaders in 1941-45. Yugoslavia became a federal republic in 1946 with Marshall Tito, a Communist, as the head. Tito, though a Communist refused to accept dictation from Moscow and was denounced by the Communist Cominform in 1948. Tito disregarded Moscow's threats, accepted aid from USA, Britain and France, and followed an independent policy in utter disregard of Stalin's power. In 1955 Premier Bulganin and Krushchev, brought about rapprochement with Yugoslavia admitting the right of Yugoslavia to pursue its own policy. In 1963 a new constitution was approved appointing Marshall Tito, as President for life.

Yugoslavia is a socialist federal republic. The head of state is the President elected by the Federal Assembly. The Assembly comprises the Federal Chamber, the Chamber of Nationalities, the Economic Chamber, the Chamber of Education and Culture, the Chamber of Social Welfare and Health and the Organisational-Political Chamber. Each Chamber has 120 Deputies.

Yugoslavia is primarily an agricultural country, though its economic character is being fast changed to that of an industrial country, by the programme of industrialisation. Nearly one-third of Yugoslavia is forest. About 60 per cent of the land is devoted to agriculture, out of which 80 per cent is taken up by cereals. The chief crops are wheat, tobacco hops, and fruits including grapes. The principal minerals are coal, iron, chrome antimony, manganese and lead Many farms are collectivised, but since 1953, participation in collective farms has been made voluntary. Private holdings are limited to 10 hectares (24.7 acres). All industries are publicly owned. Private enterprise is limited to small-scale production.

ZAIRE

N: Republic of Zaire A: 2,344,885 sq. km P: (1970 est) 21,653,000 C: Kinshasa (1,323,000) R: Tribal, Christian and Moslem L: French (official language), Over 400 Sudanese and Bantu dialects are spoken. Swahili, Kiluba, Kikorgo and Lingala being the most wide spread. W: Metric M: Zaire (1.32 Z-£1 0 50 Z-$1 .

The Republic of Zaire was known until Oct. 1971 as the Democratic Republic of the Congo. It is bounded by the Central African Republic, Sudan, Uganda, Rwanda, Burundi, Tanzania, Zambia, Angola, the Congo Republic (Kinshasa) and the Atlantic Ocean.

The river Congo, the second biggest river in Africa, had lent its name to a vast area, which comprised the Democratic Republic of the Congo (Kinshasa) and the People's Republic of Congo (Brazzaville). The Democratic Republic of the Congo changed the name of River Congo, into River Zaire and with it, its own name as Zaire. Today the Congo river is known by both names.

Originally a Belgian province, Zaire became independent in June 30, 1960. There has been very little peace in Congo after independence, as the leaders were at loggerheads with one another. On November 25, 1965 Gen. Joseph Mobutu seized control of the government in a new military coup a second time (the first being on Sept. 14, 1960) and has been in power since

The new constitution adopted in 1967 provides for a Presidential regime, with a single legislative chamber elected by universal suffrage and wide powers for the head of state who will also head the government.

The major assets of Zaire is the Katanga copper mines and the diamond deposits in Kasai The country is rich in other minerals like cobalt, cadmium, manganese, zinc and uranium. The forests abound in highclass wood like mahogany, ebony, teak, gum and resin trees: and wild life of all sorts, including lion, leopard, gorilla, antelope, buffalo, giraffe, okapi, rhinoceros and hippopotamus.

ZAMBIA

N: Republic of Zambia A: 290,586 sq. miles P: (1969) 4,056,995 C: Lusaka (262,182) T: Kitwe (199,798), Ndola (159,876) R: Christian, Moslem and Tribal L: English and Bantu W: Imperial and Metric M: Kwacha (1.86 K-£1 0.71K-$1)

Zambia, in southern central Africa, is divided from Rhodesia (Southern) by the Zambezi river and Lake Kariba. It is bounded by Tanzania, Malawi, Mozambique, Rhodesia, South West Africa (Namibia), Angola and Zaire.

Under the name of Northern Rhodesia Zambia had British protectorate status at the inauguration of the Federation of Rhodesia and Nyasaland in 1953. Independence was achieved in October 1964 and the country adopted its African name Zambia. The former British protectorate of Barotseland was incorporated within the republic of Zambia in 1964. In 1969 Barotsa province (one of the seven provinces that make up Zambia) was renamed Western Province and the Western Province was renamed Copperbelt Province

It is an independent republic within the Commonwealth. Executive power is vested in President and a cabinet, appointed by the President from among the members of the National Assembly.

Principal agricultural products are maize, tobacco, millet, cassava and groundnuts. The country is rich in minerals including copper, zinc, cobalt, gold, vanadium and manganese Smelting and refining works have grown up around the mines.

DEPENDENCIES

Name	*Location*	*Political Status*	*Area in sq. miles*	*Population*	*Capital or Head-quarters*
Afars and Issas	Africa	French overseas territory with a Governor	8800	126700	Djibouti
Angola*	West Africa	Portuguese overseas province with a Governor General	481400	339938	Luanda
Antigua	West Indies	British Associate State	171	63000	St John's
Australian Antarctic Territory	Antarctica	Australian external territory	2472000	Uninhabited	—
Azores Islands	Mid-Atlantic Ocean	Portuguese overseas Islands	890	327480	Ponta del Gada
Ashmore & Carter Islands	Indian Ocean	Australian external territory	2	Uninhabited	—
Bahamas**	West Indies	British associated State with a Governor and Legislative Council	5382	168209	Nassau
Bermuda	N. Atlantic Ocean	British colony (self-governing) with Governor. Executive and Legislative Council	21	53000	Hamilton
Bouvet Island	South Atlantic	Norwegian dependency	23	Uninhabited	—
British Antarctic Territory	Antarctic	British Colony	650000	96	Stanley, Falkland Islands
British Honduras	Central America	British Colony with Governor, Executive Council and Legislative Assembly	8886	122000	Belize
British Indian Ocean Territory	Western Indian Ocean	British Colony consisting of Chagos Archipelago and the islands of Aldabra, Desroches and Farquhar	2000	85	Victoria
British Solomon Islands	West Pacific	British protectorate	11500	161525	Honiara
British Virgin Islands	Caribbean Sea	British Colony with an administrator and executive and a legislative council	59	10500	Road Town, Tortola
Brunei	North Coast of Borneo Island	British protectorate ruled by Sultan with a legislative Council	2226	137600	Bandar Seri Begawan

* Under negotiations for independence.

** Became a fully independent State on the 10th July 1973, Prime Minister, Lyndon Pindling.

Dependencies (contd.)

Name	*Location*	*Political Status*	*Area in sq. miles*	*Population*	*Capital or Head-quarters*
Canal Zone	Isthmus of Panama, Central America	US administered territory under a treaty with Panama	647	51249	Balboa Heights
Canton and Enderbury Islands	Oceania	British/US Condominium administered by a British High Commissioner and US Administrator	27	Uninhabited	—
Cape Verde+ Islands	Eastern Atlantic Ocean	Portuguese overseas province ruled by a Governor	1557	244800	Praja
Cayman Islands	West Indies (North-west of Jamaica)	British colony with an Administrator	100	10652	George Town
Christmas Island++	Indian Ocean	Australian external territory	52	3439	Flying Fish Cove
Cocos (Keeling) Islands	Indian Ocean	Australian external territory	6	684	West Island
Comoro Islands	Mozambique Channel (Indian Ocean)	French overseas territory with a High Commissioner	863	270962	Moroni
Cook Islands	South Pacific	A self governing territory of New Zealand	93	21260	Rarotonga
Ceuta	North Africa	Spanish province	19	76098	—
Dominica	West Indies	British dependency	290	74000	Roseau
Easter Island	Pacific Ocean (West of Chile)	Chilean dependency	50	1000	Hangaroa
Faeroe Islands	North Atlantic	Danish (Denmark) dependency	540	38000	Thorshavn
Falkland Islands	South Atlantic	British Colony with a Governor	6200	2109	Stanley
French Guiana	South America	Overseas Department of France under a Governor	34750	48000	Cayenne
French Polynesia	South Central Pacific	French overseas territory under a Governor	1543	103000	Papeete (Tahiti)
French Southern and Antarctic Lands	Indian Ocean	French overseas territory under an Administrator	202916	177	—
Greenland	Artic Sea	Integral part of Denmark	840000	46331	Godthaab

Under negotiations for independence.

To be distinguished from Christmas Island, Pacific, which forms part of Gilbert and Ellice Islands. (British Colony)

Dependencies (contd.)

Name	*Location*	*Political Status*	*Area in sq. miles.*	*Population*	*Capital or Head-quarters*
Gibraltar	Mediterranean Sea	British dependency administered by a Governor	2	28407	Gibraltar
Gilbert and Ellice Islands (Including Christmas Island)	Western Pacific Ocean	British colony administered by a High Commissioner	283	53517	Tarawa
Grenada†††	West Indies	British Associated State (Self governing) with a Governor and a Premier	133	105000	St. George's
Guam	N. Pacific	Territory (unincorporated) of the US administered by a Governor	212	70000	Agana
Guernsey	Channel Islands	British Crown dependency administered by a Governor	30	48433	St. Peter Port
Galapagos Islands	Pacific Ocean	Territory of Ecuador	3000	3000	San Cristobal
Guadeloupe	East Caribbean Sea (the most northerly of Windward Islands)	Overseas Department of France with a Prefect and an elective General	683	327000	Basse Terre
Heard and Mc Donald Islands	Indian Ocean	Australian external territory	112	Uninhabited	-
Hong Kong	China	British colony ruled by a Governor	400	4089000	Victoria
Howland, Baker and Jarvis Islands	Oceania	US incorporated territory	3	Uninhabited	
Ifni	S. Morocco	Spanish African province ruled by a Governor-General	579	53000	Sidi Ifni
Isle of Man	Irish Sea	British Crown possession administered by a Governor	221	50423	Douglas
Jan Mayen	Arctic Ocean	Norwegian territory	144	36	—
Jersey	Channel Islands	British dependency administered by a Governor	45	64500	St. Helier
Juan Fernandez	Pacific Ocean	Chilean Dependency	69	1000	—
Macao	China (West of Hong Kong)	Portuguese overseas province ruled by a Governor	6	300000	Macao
Martinique (West Indies)	East Caribbean (one of the Windward Islands)	French overseas department, with a Prefect and elective General Council	431	332000	Fort-de-France
Midway Islands	Pacific Ocean	US unincorporated territory governed by an Administrator	2	2356	—

---

††† Became fully independent on Feb. 7. 1974; was admitted to the U. N. on Sep. 17, 1974.

Dependencies (contd.)

Name	*Location*	*Political Status*	*Area in sq. miles*	*Population*	*Capital or Head-quarters*
Montserrat	West Indies	British colony ruled by an administrator	40	12300	Plymouth
Mozambique*	East Africa	Portuguese overseas province ruled by a Governor General	303073	8233034	Lourenco Marques
Namibia†	South West Africa	South African League of Nations mandate with an Administrator	317827	615000	Windhoek
Netherlands Antilles	Caribbean Sea	Autonomous part of the Kingdom of Netherlands	390	220091	Willemstad Curacao
New Caledonia	South Pacific (East of Queensland, Australia).	French Overseas territory administered by an Administrator	7338	100500	Noumea
New Guinea	Eastern half of the Island of New Guinea	Australian Trust Territory governed by an Administrator	93500	1578650	Port Moresby
Neutral Zone	Arabia	Area jointly governed by Kuwait and Saudi Arabia	7000	Uninhabited	—
New Hebrides	Pacific Ocean	British/French Condominium administered by a Resident Commissioner	5700	83000	Vila
Norfolk Island	Pacific Ocean	Australian external territory governed by an Administrator	14	1377	Kingston
Nieu Island	Pacific Ocean	New Zealand dependency administered by a Resident Commissioner	100	5302	Alofi
Papua**	New Guinea Island	Trust Territory of Australia governed by an Administrator	90000	620000	Port Moresby
Peter Island	Antarctic	Norwegian dependency	96	Uninhabited	—
Pitcairn Island	Central South Pacific	British colony administered by a Governor	1.75	90	Adamstown
Portuguese Guinea	West Africa	Portuguese overseas province ruled by a Governor	13948	530000	Bissau
Portuguese Timor (Eastern portion of the island of Timor)	East Indies	Portuguese overseas province ruled by a Governor	5763	590000	Dili
Queen Maud Land	Antarctica	Norwegian dependency	--	Uninhabited	
Reunion	Indian Ocean	French overseas department administered by a Prefect	970	447341	Saint Denir

Mozambique was granted independence by Portugal on Sep. 7, 1974. The date of full independence was set for June 25, 1975. On Sep. 20, 1974 an interim government was installed with Joachim A. Chissano as Premier.

South African mandate was terminated by UN but S. Africa considers the termination illegal.

Papua (New Guinea) became a self-governing territory on Dec. 1, 1973. (Until full independence, Australia will control the Territory's defence and foreign affairs.)

Dependencies (contd.)

Name	*Location*	*Political Status*	*Area in sq. miles.*	*Population*	*Capital or Head-quarters*
Ross Dependency	Antarctica	New Zealand dependency	160000	Uninhabited	—
Ryukyu Islands (Southern)	Pacific Ocean	US Civil Administration	848	989000	Naha, Okinawa Island
St. Helena (includes Ascension and Tristan da Cunha islands)	Atlantic Ocean (off S. W. Africa)	British colony with a Governor	119	4829	Jamestown
St. Pierre and Miquelon	St. Lawrence Gulf	French overseas territory with a Governor	93	5500	St. Pierre
Samoa (American)	Pacific Ocean	US unincorporated territory with a Governor	80	28000	Pago Pago
Sao Tome and Principe Islands	Gulf of Guinea (West Africa)	Portuguese overseas province administered by a Governor	372	66000	Sao Tome
Seychelles	Western Indian Ocean	British colony ruled by a Governor	107	51396	Victoria
Spanish Sahara	Northwest Africa	Spanish African province with a Governor General	102703	64588	El Asiun
St. Christopher (Kitts - Nevis-Anguilla	West Indies	British associated State with a Governor	138	56000	Basseterre
St. Lucia	West Indies	British associated state with a Governor	238	110000	Castries
St. Vincent	West Indies	British associated state under an Administrator	150	90000	Kingstown
Surinam	South America	Self governing part of the Kingdom of the Netherlands	63064	345000	Paramaribo
Svalbard	Arctic Ocean	Part of Norway Kingdom ruled by an Administrator	23957	2900	Longyearbyen
Tokelau Islands	South Pacific Ocean	New Zealand island territory administered by a High Commissioner	4	1900	Fakaofo
Trust Territory of the Pacific Islands (Marshall, Carolin and Mariana Islands)	Pacific	United States Trust Territory with a High Commissioner	699	102250	Saipan
Turks and Caicos Islands	Caribbean Sea	British colony administered by a Governor	166	6272	Grand Turk Island
Virgin Islands	West Indies	US unincorporated territory	133	74033	Charlotte Amalie
Wake Island	Pacific Ocean	US unincorporated territory ruled by an Administrator	3	1763	
Wallis and Futuna Islands	S. Pacific	French overseas territory governed by an Administrator	98	9000	Matautu (Uvea)

HEADS OF STATES

Afghanistan. President & Premier: Prince Mohammed Daud, July 17, 1974

Albania. President: Haxhi Llechi, Aug 1, 1953 Premier: Mehmet Shehu, July 20, 1954.

Algeria. President: Col. Houari Boumedienne, July 5, 1965.

Andorra. General of the Council: Francesc Esude-Ferrero, 1967

Argentina. President: Isabel Martinez de Peron, July 2, 1974.

Australia. Governor General: Sir Paul M C. Hasluck, April 30, 1969. Premier Edward Gough Whitlam, Dec. 5, 1972.

Austria. President: Rudolf Kirchschlaeger, July 8, 1974 Chancellor: Bruno Kreisky, April 21, 1970 Foreign Minister: Erich Bielka-Karltreu, July 8, 1974

Bahamas Prime Minister: Lyndon O Pindling, July 10, 1973

Bahrain. Head of State: Premier: Sheik Isa bin Sulman al Khalifah. Nov. 2, 1961.

Bangladesh. President: Abu Sayeed Choudhry, Jan 12, 1972. Prime Minister: Sheik Mujibur Rahman, Jan. 12, 1972

Barbados. Prime Minister: Errol Walton Barrow, Dec. 4, 1961.

Belgium. Head of State: King Baudouin I, July 16, 1951. Prime Minister: Leo Tuidemans, Apr 25, 1974

Bhutan. Head of State: Maharaja Jigme Singhye Wangchuk, July 21, 1972 Chief Minister. Lhendup Dorji, June 1974.

Bolivia. President: Col Hugo Banzer Saurez, Aug, 22, 1971. Foreign Minister: Gen. Alberto Guzman Soriano July 8, 1974

Botswana. President: Sir Seretse Khama, Sept. 30, 1966

Brazil. President: Gen. Emesto Geisel, Mar, 15, 1974. Foreign Minister: Antonio Fancisco Azeredo da Silviera Mar. 15, 1974

Bulgaria. Chairman of the State Council: Toder Zhivkov, July 7, 1971. Premier: Stanko Todorov, July 7, 1971.

Burma: President: Gen. Ne Win, Mar. 2, 1962. Premier: Sein Win, Mar. 4, 1974

Burundi. President: Michel Micombero, Nov. 29, 1966 Premier: Albin Nyamoya, July 15, 1972.

Cameroon. President: Ahmadou Ahidjo, May 5, 1960. Foreign Minister: Vincent Efon, July 3, 1972

Canada. Sovereign: Queen Elizabeth II, Feb 8, 1952. Governor General: Jules Leger, Jan 14, 1974. Prime Minister: Pierre Elliot Trudeau, Apr. 20, 1968

Central African Republic. President: Brig. Gen Jean Badel Bokassa, Jan. 1, 1966 Vice President: Antoine Guimali, June 25, 1970.

Chad. President: Francois Tombalbaye, Aug 11, 1960,

Chile. Supreme Chief (Head of State) Augusto Pinchet Ugarte Sept. 11, 1973.

China. Chairman of the Republic (Head of State): Tung Pi wu Nov. 1, 1968 Premier; Chou Enlai, Sept. 21, 1949. Chairman of the Central Committee of the Communist Party: Mao Tse-tung, 1949.

Colombia. President: Alfonso Lopez Michelson, Aug. 7, 1974. Foreign Minister: Indalecio Lievano Aquirre Aug. 7, 1974.

Congo Republic. President: Maj. Marien Ngouabi, Dec. 31, 1968. Vice President: Aloise Moudileno-Massengo, Dec 16, 1970.

Costa Rica, President: Daniel Oduber Quiros. May 8, 1974 Foreign Minister: Gonzalo Facio Segreda.

Cuba. President: Osvaldo Dorticos Torrado, July 18, 1959. Premier Fidel Castro Ruz, Feb. 16, 1959.

Cyprus. Ag President: Glafkos Clerides, July 23, 1974. Foreign Minister: Ioannis Christofides. Aug. 28, 1974.

Czechoslovakia. President: Gen Ludvik Svoboda, Mar 30, 1968. Premier: Lubomier Stroughal, Jan. 28, 1970. First Secretary of the Czechoslovak Communist Party: Gustav Husak, April 17, 1969

Dahomey. President and Chief of State: Maj. Mathieu Kerekon, October 26, 1972. Foreign Minister: Michael Aladaye, Oct. 26, 1972

Denmark. Monarch: Queen Margrethe II, Jan 14, 1972. Premier: Anker Joergensen Oct. 5, 1972.

Dominican Republic. President: Joaquin Balgauer, July 1, 1966

Ecuador. President: Gen. Guillermo Rodriguez Lara Feb. 15, 1972.

Egypt. (Arab Republic of Egypt) President: Anwar Sadat, Mar. 26, 1973.

El Salvador. President: Col. Arturo Armando Molina, July 1, 1972.

Equatorial Guinea. Head of State and Foreign Minister: Francisco Macias, Sept. 22, 1968

Ethiopia. Emperor: Designate Crown Prince: Asfa Wossen (only son of Emperor Haile Selassie) sept 12, 1974. Head of Provisional Military Govt: Lt. General Aman Michael Andom Sept. 12, 1974 Foreign Minister: Zawde Gebre Selassie, May 29, 1974.

Fiji. Prime Minister: Ratu Sir Kamirese Mara, Oct 10, 1970

Finland. President: Urho Kaleva Kekkonean, Mar. 1, 1956. Premier: Kalevi Sorsa, Sept. 4, 1972.

France. President: Valery Giscard d' Estaing, May 27, 1974 Premier: Jacques Cheria, May 28, 1974.

Gabon. President: Albert Bernard Bongo, Nov. 28, 1967.

Gambia President: David Dauda K Jawara, April 24, 1970 Vice President: Sherif M Dibba, Jan 1, 1968

Germany East. Democratic Rep. of Germany) Chairman of the Council of State: Willi Stoph Oct. 1973. Chairman of the Council of Ministers: Horst Sindermann, Oct 1973.

Germany West (Federal Republic of Germany) President: Walter Scheel May 15, 1974. Chancellor: Helmut Schmidt, May 16, 1974.

Ghana. President and Foreign Minister: Col. I. K Acheampong Jan. 13, 1972 Premier:Eric Mathew Gairy, Feb.2, 1974

Greece. President: Lt. Gen. Phaidon Gizikis Nov. 25.1973. Premier: Constantine Karamanlis, July 24, 1974.

Gautimala. President: Kjell Langerud Gracia, July 1, 1974 Foreign Minister: Alfonso Molina Orantes July, 1, 1974

Guinea. President: Sekou Toure, Oct. 2, 1958. Re elected on Jan. 1, 1968 Prime Minister: Louis Lansana Beavogui Apr. 26, 1972.

Guinea Bissau. President: Luiz Cabral, Sept 24, 1973.

Guyana President: Arthur Chung, March 17, 1970. Prime Minister: L. F. S. Forbes Burnham, Dec 14, 1964.

Haiti. President: Jean Claude Duvalier, Apr. 21, 1971.

Honduras. President: Osvaldo Lopez Arellano, Dec. 5, 1972. Foreign Minister: Cesar Batres, Dec. 6, 1973.

Hungary. President: Pal Lozonezi, April 14, 196[illegible]. First Secretary of the Central Committee of The Hungarian Socialist Workers (Communist Party); Janos Kader, Oct. 25, 1956.

Iceland. President: Dr. Kristjan Eldjaran, Aug. 1, 1968 Premier: Geir Halgrimsson Aug. 27, 1974

India. Prime Minister: Indira Gandhi. Jan. 19, 1966 President: Fakhrudden Ali Ahmed, Aug, 29, 1974. Vice President: B. D. Jatti, Aug. 31, 1974.

Indonesia. President and Foreign Minister Adam Malik

Iran Monarch. Shah Mohammed Reza Pahlevi, Sept. 16, 1941. Premier: Amir Abbas Hoveida, Jan 26, 1965.

Iraq: President Gen. Ahmed Hassan al-Bakr July 17, 1968

Ireland. President: Erskine Childers, June. 2, 1973. Prime Minister: Liam Cosgrave, Mar. 14 1973.

Israel. President: Ephraim Katzir, May 24, 1973 Premier: Yitzak Rabin, June 3, 1974

Italy. President: Giovanni Leone, Dec. 29, 1971. Prime Minister: Mariano Rumor, June 21, 1973.

Ivory Coast. President: Feilx Houphouet-Boigny, Nov. 27, 1960.

Jamaica. Prime Minister: Michael Manley, Mar. 1, 1972

Japan. Emperor: Hirohito, Dec. 25, 1926. Premier: Kakuei Tanaka, July 7, 1972 Foreign Minister: Toshio Kimura, July 16, 1974

Jordan. Monarch: King Hussein Ibn Talal, May 2, 1953. Premier: Zaid al-Rifai, May 26, 1973

Kenya. President: Jomo Kennyatta, Dec 12, 1964 Foreign Minister: Njoroge Mungai.

Khemr Republic (Cambodia). President: Gen. Lon Nol, March 11, 1972. Premier: Long Boret, Dec. 26, 1973. Foreign Minister: Keuky Lim Dec. 26, 1973.

Korea North. President and Premier Kim I Sung, Dec 28, 1972.

Korea South. President: Gen Park Chung Hee, May 1971 Premier: Kim Chong Pil, June 3, 1971

Kuwait. Head of State: Sheik Sabah al-Salem al-Sabah. Nov. 27, 1965 Prime Minister: Sheik Jabar al-Ahmed al-Jaber al-Sabah Nov. 30, 1965.

Laos. Monarch: King Savang Vathana, Nov 4, 1959 Premier: Prince Souvanna Phouma, June 23, 1962. Foreign Minister: Phoumi Vongvichit, Apr. 5, 1974.

Lebanon. President: Suleiman Franjieh, Sept. 23, 1970. Premier: Takieddin Soth, July 8, 1973

Lesotho. Head of State: King Moshoeshoe II. Prime Minister: Lebua Jonathan, July 7, 1965. Foreign Minister: J. R. Kostsokoane, May 7, 1974.

Liberia. President: William R. Tolbert, July 23, 1971. Secretary of State: Rocheford Weeks, Jan. 10, 1972.

Libya. Chairman of the Revolutionary Command Council: Col. Maamar Ghaddafi, Sept. 8, 1969 Premier: Maj. Abdul Salam Jallud, July 10, 1972.

Liechtenstein. Sovereign: Prince Francis Josef II, July 25, 1938.

Luxembourg. Grand Duke: Jean, Nov. 12, 1964 Premier: Gaston Thorn, June 18, 1974 Foreign Minister: Gaston Thorn, Jan. 31, 1969.

Malagasy Rep. (Madagascar) Prime Minister: Gen. Gabriel Ramantsoa, May 18, 1972 Foreign Minister: Didier Ratsiraki, May 27, 1972.

Malawi. President: Hastings Banda, July 6, 1966.

Malaysia. Head of State: Abdul Halim Muzzam Sultan of Kedah, Sept. 22 1970 Prime Minister: Tun Abdul Razak.

Maldives, Republic of President: Ibrahim Nasir, Nov 11, 1968. Foreign Minister: Ahmed Zaki

Mali. President and Premier: Col. Moussa Taore, Nov. 19, 1969. Foreign Minister: Sissoko.

Malta. Sovereign: Queen Elizabeth II. Governor General: Sir Antony Mamo, June 22, 1971. Prime Minister: Dom Muitoff, June 17, 1971.

Mauritania. President: Mokhtar Ould Daddah, 1971.

Mauritius. Governor General: Sir Raman Osman, Dec. 1972. Premier: Seewoosagur Ramgoolam, Mar. 12, 1968. Foreign Minister: Seewoosagur Ramgoolam Feb. 2, 1974.

Mexico. President: Luis Echeverria Dec. 1, 1970. Foreign Minister: Emilio O. Rabasa, Dec. 1, 1970.

Monaco. Sovereign: Prince Rainier III, May 9, 1949 Minister of State: Francois-Didier Greh, Apr. 2, 1969.

Mongolia. Head of State (Chairman of the Presidium of the Peoples Khural) Jamsrangiyn Sambuu Chairman of the Council of ministers. Yumjaagiyn Tsedenbal.

Morocco. Monarch: King Hussan II, Feb. 26, 1961. Premier: Ahmed Osman, Nov. 19, 1972. Foreign Minister: Ahmed Laraki, Apr. 25, 1974.

Muscat and Oman. Monarch: Sultan Quabus bin Said, July 24, 1970. Prime Minister: Tariq bui Taemier, Aug. 9, 1970

Nauru. President: Hammer de Roburt, May 18, 1969

Nepal King Birendra Bir Bikram Shah Deva (Sovereign) Jan 31, 1972. Premier: Kirti Nidhi Bista, Apr 14, 1971

Netherlands. Monarch: Queen Juliana. Sept. 4. 1948 Premier: Joop Den Uyl, May 11, 1973.

New Zealand. Governor General: Sir Arthur Porritt, Nov 1967. Prime Minister and Minister of External Affairs: Wallace Edward Rowling, Sept. 6, 1974.

Nicaragua. President of the National Emergency Committee: Gen Somoza. Governing Council: (Head of State) President of the Supreme Niger Military Council: Lt. Col. Seyni Kountche, April 17, 1974. Foreign Minister: Capt Moumouni Ammadou, April 17, 1974.

Nigeria. Head of State: Gen. Yakubu Gowon Aug. 1, 1966. Foreign Affairs Commissioner: Okoi.

Norway. Monarch: King Olab V Sept. 21, 1957. Premier: Trygue Bratteli, Oct, 16, 1973.

Pakistan President: Chandri Fazal Elahi, Aug. 14, 1973. Premier: Zufilqar Aii Bhutto, Aug. 14, 1973.

Panama. President: Demettrio Basilio Lakas Bahas, De. 19. 1969. Deputy President: Arturo Sucre Pereiva, Dec 19, 1969. Foreign Minister: Juan Antonio Tack.

Papua New Guinea. Chief Minister: Michael Somari, April 20, 1972 Defence & Foreign Minister: Albert Maori Kiki. Aug. 2, 1973.

Paraguay. President: Gen. Alfredo Stroessner, Aug. 15, 1954

Peru. President: Juan Valasco Alvarado, Oct. 3, 1968 Premier and Defence Minister: Gen. Edgardo Mercado Jarrin, Feb 1, 1973.

Philippines. President and Prime Minister: Ferdinand E. Marcos Nov. 1969. Foreign Minister: Carlos P. Romulo

Poland Premier: Pjotr Jaroszewicz, Dec 23, 1970 Head of State: Henryke Jablonski, Mar. 28, 1972. First Secretary of the Central Committee of the United Workers, (Community Party) Edward Gierek Dec. 20, 1970.

Portugal. President: Gen. Francisco da Costa Gomes, Sep. 30, 1974. Premier: Vasco Goncalves, July 13, 1974 Foreign Minister: Mario Soares, May 15, 1974

Quatar. Head of State: Sheik Khalifa bin Hamad al-Thani, Feb. 22, 1972 Chairman of the Advisory Council: Sayed Abdulaziz bin Khalid al- Ghamem Apr. 23, 1972.

Rhodesia. President: Clifford W. Dupont Mar. 12, 1970. Prime Minister: Ian D Smith. Apr. 13, 1964.

Romania. President of the Republic (Head of State): Nicolae Ceausescu, Mar. 28, 1974. Premier: Manena Manescu, Mar 26, 1974 General Secretary of the Romanian Communist Party: Nicolae Ceausescu, Mar. 22, 1965.

Rwanda. President, Head of Govt. and National Defence Minister: Maj. General Juvenal Habiyarimana, July 5, 1973.

San Marino. Secretary of State for Foreign Affairs: Giancarlo Ghronzi, Nov. 1966.

Saudi Arabia. Head of State and Prime Minister: King Faisal Ibu Abdul Aziz al Saud, Nov. 2, 1964.

Senegal. Head of State: Leopold Senghor, Sept. 5, 1960. Premier: Abdou Diouff, Feb. 26, 1960.

Sikkim. Indian Associate State from 4-9 74. Chogyal: (Head of State) Palden Thonduf Namgyal Dec 2, 1963 Chief Executive (Head of Govt): Kazi Lhenduf Dhorji, July 24, 1974.

Singapur. President: Dr. Bengamin Henry Sheares, Jan. 2. 1971, Prime Minister: Lee Kwan Yew, June 5, 1969.

Somalia. President of the Supreme Revolutionary Council (Head of State) Gen. Mohammad Ziyad Barre, Nov 1, 1969. Foreign Minister: Omar Arteh Ghalib Nov. 1, 1969.

South Africa. President: Jacobus Johannes Fouche, April 10, 1968. Premier: Balthazar J. Vorster Sept 13, 1966.

Spain. Gen. Franco delegates his powers as Chief of State to Prince Juan Carlos on July 19, 1974. Premier: Carlos Arias Navarro, Dec. 1973

Sri Lanka (Ceylon). President: William Gopallawa, May 22, 1972. Prime Minister: Mrs. Sirimavo Bandaranaike, May 29, 1970.

Sudan. President: Maj Gen. Gafaar al-Nemeiry, Oct. 28, 1969.

Swaziland. Head of State: King Sobhuz II. President: Nello Celio, Jan. 1, 1972.

Sweden. Monarch: King Karl XVI Gustav, Sept 15, 1973 (Ceremonial figure head from Jan. 1, 1975) Premier: Olof Palme, Oct. 1969.

Switzerland (Swiss Confederation) President: Ernest Brugger. Jan. 1, 1974, Vice President: Pierre Graber, Jan. 1, 1974

Syria. President: Gen. Hofez al-Assad, Mar. 14, 1971. Premier: Mahmoud al-Ayubi, Dec 23, 1972.

Taiwan (Nationalist China) President: Generalissimo Chiang Kai shek, Sep. 13, 1943. Premier: Chiang Ching Kuo, May 17, 1972

Tanzania. President: Mwalimin Julius K. Nyerere, Apr. 27, 1964. Premier: Rashidi M. Kawawa, Feb 17, 1972.

Thailand. Monarch: Bhumibol Adulyadej, June 9, 1946. Premier: Sanya Thammarsak, Oct. 16, 1973.

Togo. President: Brig. Gen. Grassingbe Eyadema (former name Etienne Eyadema) Apr 14, 1967. Foreign Minister: Joachim Hunledi.

Trinidad and Tobago. Governor General: Sir Ellis Emmanuel Innocent Clarke, Jan 31, 1973. Prime Minister and Minister for External Affairs: Eric Williams July 20, 1959.

United States. President: Gerald Rudolf Ford, Aug 9, 1974. Vice President: Nelson A. Rockfeller, Aug. 9, 1974. Secretary of State: Dr Henry Kissinger, 1973.

U. S. S. R. Chairman of the Presidium of the Supreme Soviet: Nikolai V. Podgorny, Dec 9, 1965. Chairman of the Council of Ministers (Premier) Alexi N. Kosygin Oct 15, 1964 General Secretary of the communist party of the Soviet Union: Leonid I Breshnev, Oct. 14, 1964

Upper Volta. President and Prime Minister: Lt. Col. Sangoule Lamizana Feb. 11, 1974. Foreign Minister: Capt Serje

Uruguay. President: Juan M. Bordaberry, Mar. 1, 1972.

Vatican City. Supreme Pontiff: Paul VI, June 21, 1963 Secretary of State: Cardinal Jean Villot, Apr. 30, 1969.

Venezuela. President: Carlos Andres Perez Mar 12, 1974 Foreign Minister: Efrain Schacpt Aristeguiera April. 6, 1973.

Viet Nam, N. President: Tom Duc Thang. Sep. 23, 1969. Premier: Pham Van Dong, Sep. 20, 1955.

Viet Nam, S. President: Gen Nguyen Van Thieu. Oct. 3, 1971. Premier: Gen. Tran Thein Khiem, Sept. 1, 1969.

Western Samoa. Chief of State: Chief Malietoa Tanumafili. Apr 1963. Prime Minister: Chief Tupua Tamasese Lealoli I, Feb. 26, 1970.

Yemen-Democratic People's Republic of. (south Yemen) President: Salem Rabaya Ali. Prime Minister: Ali Nazar Mohammad.

Yemen. N. Col. Ibrahim al Hamdi (Chairman of Revolutionary Council).

Yugoslavia. President of the Republic (Head of State) Marshal Josip Broz Tito, Jan. 14, 1953. Premier: Dzemal Bijedic, July 30, 1971.

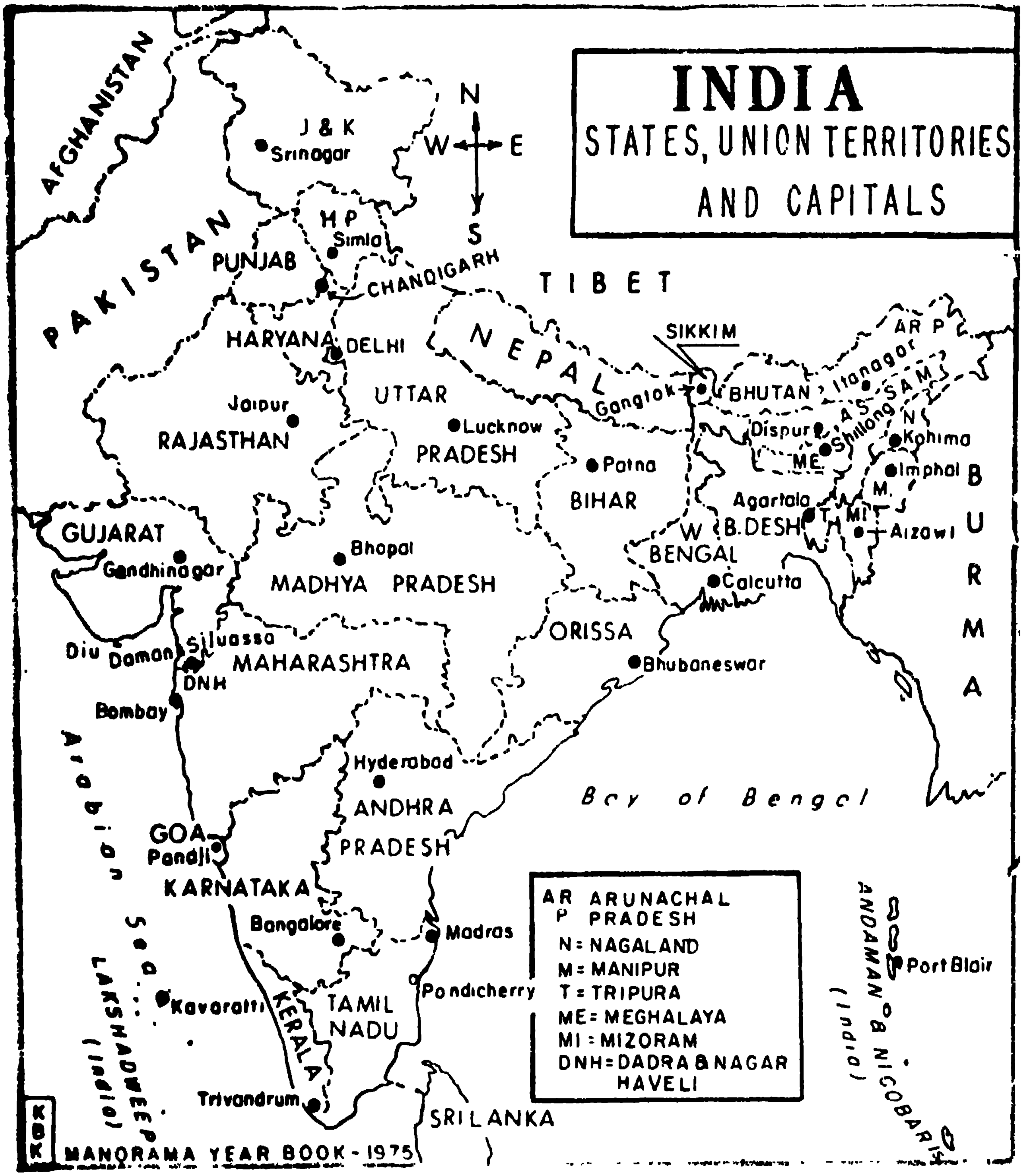
Zaire Republic. President: Gen Mobutu Sese Soko, Nov. 25, 1965 Foreign Minister: Nguza Karl I Bond, Feb. 21, 1972.

Zambia. President: Kenneth Kaunda, Oct. 24, 1964. Prime Minister: Maniza Chona, Aug. 28, 1973.

PART III

INDIA

THE COUNTRY. PHYSIOGRAPHY. FLORA & FAUNA. CLIMATE & RAINFALL THE PEOPLE. POPULATION. RELIGIONS LANGUAGES. LANDMARKS OF INDIAN HISTORY. CONSTITUTION & GOVERNMENT. CONSTITUTION AMENDMENTS. POLITICAL PARTIES. ELECTIONS. NATIONAL ECONOMY. DEFENCE. PLANNING. PUBLIC FINANCE BANKING & CREDIT. CURRENCY & EXCHANGE. LAND POLICY. THE FOOD PROBLEM CROPS & SEASONS. AGRICULTURE. IRRIGATION ANIMAL HUSBANDRY. FORESTRY. FISHERIES. POWER. MINERALS & METALS. INDUSTRIAL POLICY. INDUSTRIAL DEVELOPMENT. PUBLIC SECTOR. PRIVATE SECTOR. SMALL SCALE SECTOR. CO-OPERATION. TRADE. RAILWAYS. ROADS & WATERWAYS. SHIPPING & AVIATION. POSTS & TELEGRAPHS. BROADCASTING & TELEVISION. THE SCREEN. THE PRESS. LABOUR & EMPLOYMENT. EDUCATION & RESEARCH. HEALTH & SOCIAL WELFARE. BACKWARD CLASSES. WILD LIFE. TOURISM. STATES & TERRITORIES.


INDIA
STATES, UNION TERRITORIES
AND CAPITALS
N
W
E
S
AFGHANISTAN
PAKISTAN
TIBET
NEPAL
BHUTAN
SIKKIM
Gangtok
B.DESH
BURMA
SRI LANKA
J & K
Srinagar
H P
Simla
PUNJAB
CHANDIGARH
HARYANA
DELHI
RAJASTHAN
Jaipur
UTTAR
PRADESH
Lucknow
BIHAR
Patna
W
BENGAL
Calcutta
AR P
Itanagar
ASSAM
Dispur
Shillong
ME
N
Kohima
Imphal
M
Agartala
T
MI
Aizawl
GUJARAT
Gandhinagar
MADHYA PRADESH
Bhopal
ORISSA
Bhubaneswar
Diu
Daman
Siluassa
DNH
MAHARASHTRA
Bombay
Hyderabad
ANDHRA
PRADESH
GOA
Panaji
KARNATAKA
Bangalore
Madras
Pondicherry
TAMIL
NADU
KERALA
Trivandrum
Kavaratti
LAKSHADWEEP
(India)
Arabian Sea
Bay of Bengal
ANDAMAN & NICOBAR IS
(India)
Port Blair
AR P ARUNACHAL PRADESH
N = NAGALAND
M = MANIPUR
T = TRIPURA
ME = MEGHALAYA
MI = MIZORAM
DNH = DADRA & NAGAR HAVELI
KBK
MANORAMA YEAR BOOK - 1975

THE COUNTRY

India. The name India is derived from the river *Indus* which flows through the north west of India, now, north-west India and Pakistan. The early Aryan settlers in India christened it the *Sindhu*, literally, a vast sheet of water.

The *Indus* is one of the great rivers of the world. Its annual flow is twice that of the *Nile*, and three times that of the twin giants, *Euphrates* and *Tigris* combined. The Aryans in their long trek through Iran into India could never have encountered a river of such magnitude as the *Indus*. That was probably why they called it the *Sindhu* In 522 BC Darius, the Persian Emperor conquered the country around Indus and converted it into a Persian satrapy. The Persians, who found it difficult to pronounce an initial 'S' turned *Sindhu* into *Hindu* Passing through the hands of the Greeks, *Hindu* became *Indus* India was the country of the *Indus* With the Muslim invasions, the old Persian name returned in the form of *Hindustan* and the people who inhabited the land, came to be called *Hindus*.

Thus the name Hindu, even in medieval times, did not signify the religious community, with which it is identified today It simply meant Indian

Location. Geographically India occupies a strategic position in South Asia, looking across the sea to Arabia and Africa on the west and to Burma, Malaysia and the Indonesian archipelago on the east. It is separated from the rest of Asia by the towering Himalayas which form an irregular crescent in the north.

Historically, the mountain ranges on the north had kept India practically segregated from the two mainstreams of Asiatic history, one starting from the Middle East and the other originating in China. But India never turned out to be a *cul de sac* of history. It opened up a third stream of Asiatic history, all its own, which so far as our present knowledge goes, began with the Indus Valley Civilization, six thousand years ago.

Geological Structure. Geologically, the subcontinent of India, (including Pakistan and Bangladesh) is made up of three distinct crust blocks.

(1) *Peninsular India* or the Deccan Plateau, south of the Vindhyan mountains (2) *Himalayan ranges* and their offshoots, that bound India on the west, north and east (3) *Indo-Gangetic Plain* formed by three big rivers, the Indus, the Ganga and the Brahmaputra. This plain separates the Deccan Plateau from the great mountain ranges.

These three blocks, can be conveniently divided into two geological areas (1) the Peninsular India, comprising the Deccan Plateau and its adjuncts and (2) the extra-Peninsular India, made up of the great Himalayan mountains and the extensive Indo Gangetic plain

Deccan Plateau is geologically, the oldest portion of India's land surface and is believed to have been part of a huge continent, that once covered the Indian and Atlantic Oceans, uniting within its borders, America, Africa, India, Australia and Antarctica *

The Plateau, or Peninsular India, has been a land surface, from the remotest period of geological history. It was believed that this area known as the peninsular shield was safe from major earthquakes

But the Koyna earthquake which struck on 12th December, 1967 has rudely shaken this theory This earthquake is held to be tectonic† in origin and appears to have originated from the Malabar fault or one of its satellites. This fault system extends from Kutch to Cape Comorin, accompanied by a system of parallel fractures. However, geologists are not yet agreed on the hows and whys of Koyna.

Extra-peninsular area comprising the Himalayas and the Indo Gangetic plain "appears to have been a comparatively weak and flexible part of the earth's crust which has undergone a great deal of crumpling, folding and deformation. It has lain under the sea for the greater part of its history and has undergone, at a very late geological epoch, an enormous amount of compression and mountain building material".

It is one of the puzzles of geology, as Dr. D. N. Wadia points out, how three geologically different crust blocks, like the Deccan, the Himalayas and the Indo-Gangetic plain became welded into the geographical entity, called India.

---

* See The Saga of the Continents p. 115

† See Earthquakes, p. 120

PHYSIOGRAPHY

INDIA lies to the north of the equator, between 8° 4′ to 37° 6′ north latitude and 68° 7′ to 97° 25′ east longitude. It is bounded on the south-west by the Arabian Sea and on the south-east by the Bay of Bengal. On the western border lies Pakistan and in the east, Bangladesh and Burma. The northern boundary is made up of the Sinkiang province of China, Tibet, Nepal, Bhutan and Sikkim. The southern tip of India, Cape Comorin (Kanyakumari) is washed by the Indian Ocean.

India measures about 3,219 km. from north to south and about 2,977 km. from east to west, with a total land area of 3,268,090 sq km It has a land frontier of 9,425 miles and a coastline of 3,535 miles.

Andaman and Nicobar Islands in the Bay of Bengal and the Laccadive, Minicoy and Amindivi Islands in the Arabian Sea are parts of the territory of India

India has seven major physiographic regions: 1) Northern Mountains, including the Himalayas and the mountain ranges in the north-east, (2) The great Indo Gangetic plain. (3) Central Highlands, (4) Peninsular plateau, (5) East Coast, (6) West Coast, (7) Bordering seas and islands.

All the major land forms, hills, mountains, plateaus and plains are well represented in India. Much of the land surface of India has developed a plateau character. There are extensive plains either flat or rolling at levels ranging from 300 to 900 metres, dotted with conical or rounded hills or traversed by flat topped ridges. These are mostly in the central highlands and the peninsular plateau of the Deccan.

The alluvial plains however have been the most important land area, in India, historically and economically. Extending over 400,000 sq. km, this area is so fertile that it has encouraged agriculture from the earliest times. Its topography facilitates easy communication. This has led to the development of populous settlements. The western sections of the plain have river-borne alluvium mixed with windblown material, while the eastern section is made up almost entirely of river borne alluvium. These plains are watered by the great rivers of India—Indus, Ganga, and Brahmaputra in the north and Godavari, Krishna, Kavery, Mahanadi, Narmada and Tapti in the Peninsula.

Mountain System. India has seven principal mountain ranges (1) the Himalayas, (2) the Patkai and other ranges bordering India in the north and north-east, (3) the Vindhya. (4) the Satpura, (5) the Aravalli, which separate the Indo-Gangetic plain from the Deccan Plateau, (6) the Sahyadri, which covers the eastern fringe of the West Coast plains and (7) the Eastern Ghats, irregularly scattered on the East Coast of India and forming the boundary of the East Coast plains.

Himalayas, the highest Mountain system in the world contains some ten peaks above 25,000 ft. They are also the world's youngest and the longest east-west mountain system. It extends practically uninterrupted for a distance of some 2,500 km and covers about 500,000 sq km. They were uplifted from the floor of the great Tethys Ocean about fifty or sixty million years ago They took some six or seven million years to attain their full height. While Himalayas were rising, they were also being eroded. This continuous erosion brought into being the three great rivers—Indus. Ganga and Brahmaputra. The alluvial deposits, borne down from the Himalayas by these rivers through millions of years, have filled up the depression between the Himalayas and the Deccan plateau and have brought into existence, the present Indo-Gangetic plain.

The Himalayan mountain system is divided into three parallel zones: (i) the *Greater Himalayas*, the main ranges rise to an average elevation of 6,100 m. above mean sea level. This is the birthplace of multitudes of glaciers, some of which are among the longest in the world, (ii) the *Lesser Himalayas* lying south of the Greater Himalayas are the middle ranges, with an average height between 2,600 and 4,600 m. The Lesser Himalayas do not support any glaciers, as their altitude is below the snow-line (iii) the *Outer Himalayas*, comprise the mountain ranges that lie between the Lesser Himalayas and the plains of India They have an average elevation of 1000–1300 metres.

Patkai, and allied mountain ranges run along the Indo-Bangladesh-Burma border and may collectively be called *Purvachal* or eastern mountains. These ranges forming an arc must have come into existence along with Himalayas.

Aravalli range in north-western India is one the oldest mountain systems in the World. The Present Aravalli range is only a remnant of the gigantic system that existed in prehistoric times with several of its summits rising above the snow line and nourishing glaciers of stupendous magnitude which in turn fed many great rivers.

Vindhyan range traverses nearly the whole width of Peninsular India—a distance of about 1,050 km with an average elevation of some 300 metres. The Vindhyan ranges appear to have been formed by the weathered products of the ancient Aravalli ranges

Satpura range, another ancient mountain system extends for a distance of 900 km with many of its peaks rising above 1,000 metres. It is triangular in shape, with its apex at Ratnapuri and two of its sides running parallel to the Narmada and Tapti rivers.

Sahyadri, or Western Ghats with an average height of 1,200 metres is about 1,600 km long and runs along the western border of the Deccan Plateau, from the mouth of the river Tapti to Cape Comorin (Kanyakumari) the southernmost point of India. It overlooks the Arabian Sea, and catches the full force of the monsoon winds, thus precipitating heavy rains on the West Coast.

Eastern Ghats, bordering the East Coast of India, is cut up by powerful rivers into discontinuous blocks of mountains. In its northern parts between the Godavari and Mahanadi rivers it rises to above 1,000 metres.

River System

There are three main watersheds: (1) Himalayan ranges with its Karakoram branch in the north, (2) Vindhyan and Satpura ranges in Central India and (3) Sahyadri or Western Ghats on the West Coast. All the major rivers of India originate in one or the other of these water-sheds.

Rivers of India are estimated to carry 1,683,000 million cubic metres of water per year and in the process they do a lot of constructive work. They build alluvial terraces in the Himalayas, piedmont plains at the foot of the hills and mountains, flood plains in their courses throughout and deltas at their mouths. The Indo-Gangetic plain in North India is the creation of the Indus, the Ganga and the Brahmaputra. The East Coast deltas are the handiwork of Mahanadi, Godavari, Krishna, Cauvery and Pennar rivers, while the West Coast deltas have been formed by Narmada and Tapti in the extreme north and by a host of lesser rivers-Sharavati, Netravati, Bharatapuzha, Periyar and Pamba in the far South. The rivers of India may be broadly classified into two categories, the Himalayan group and the Deccan group.

Himalayan System. The rivers of the Himalayan System are geologically younger than those of the Deccan and are rapid torrential streams which are still in a very youthful or immature stage of development. They are continuously at work in degrading or lowering their channels and cutting deep gorges, hundreds of metres deep through the mountain paths of their tracks. The main rivers of the Himalayan group are: *Indus, Ganga* and *Brahmaputra*. These rivers are both snow-fed and rain-fed and have therefore continuous flow throughout the year. Himalayan rivers discharge about 70 per cent of the total discharge of the Indian rivers into the sea. This includes about 5 per cent from central Indian rivers, which join the Ganga and drain into the Bay of Bengal.

The Indus and five tributaries, Jhelum, Chenab, Ravi, Beas and Sutlej rise in Mount Kailas in Tibet and flowing through Punjab and Sind (Pakistan) fall into the Arabian Sea.

The Ganga rising near the glacier Gangotri, in the Himalayas, flows through Uttar Pradesh, Bihar and Bengal and falls into the Bay of Bengal. Ganga and its tributaries, Jamuna, Gumta, Garga, Sarda, Gandak, Chambal, Sone and Kosi spread out like a fan, in the plain of Hindustan, thus forming the largest river basin in India, with an area of one quarter of the total area of India,

The Brahmaputra, rising in Western Tibet flows for some 800 miles through the Himalayas, then turns southwest and then south, joining the eastern-most branch of the Ganga-the Padma-and empties together with Ganga into the Bay of Bengal.

Deccan System. The rivers of Deccan denuding their beds for long geological ages have developed flat valleys with low gradients. The major Deccan rivers are *Godavari, Krishna, Cauvery, Pennar, Mahanadi, Damodar, Sharavati, Netravati, Bharatapuzha, Periyar, Pamba, Narmada* and *Tapti.* These rivers are entirely rain fed with the result that many of them shrink into riuvlets when the hot season opens. The Deccan rivers contribute about 30 per cent of the total outflow in India. Of this, the rivers that flow from west to east account for 20 per cent and those from east to west about 10 per cent

The Godavari, Krishna, Cauvery, Pennar all rise in the Western Ghats and traverse the plateau and the East Coast, to fall into the Bay of Bengal. Godavari has the second largest river basin in India, comprising about 10 per cent of the total area of India. The Krishna basin is the second largest in the peninsula, and the third largest in the whole of India.

Mahanadi and Damodar rise in the north west of the plateau and flow east to fall into the Bay of Bengal. The Mahanadi forms the third biggest basin in the peninsula, and the fourth in all India.

Narmada and Tapti rising in the northernmost extremity of the plateau fall into the Gulf of Cambay, in the Arabian Sea. Narmada, has a fairly extensive basin, next only to those of Krishna and Mahanadi.

Rivers Sharavati, Netravati, Bharatapuzha, Periyar and Pamba rise in the Western Ghats and cross the West Coast to fall into the Arabian Sea These rivers are comparatively short with limited catchment areas and minor basins.

FLORA AND FAUNA

Flora

FEW other countries of comparable size possess such a rich and varied vegetation as India. Situated as it is between 8° 4′ N. and 37° 6′ N of the equator, the country has a great latitudinal spread which means a wide range of temperature conditions. Altitudinally the extremes are even greater, ranging from sea-level to the highest mountains in the world. The humidity and rainfall also vary greatly, from the lowest point in Thar desert to the highest in the hills of Assam, where Cherapunji with an annual rainfall of 1,080 cm. is reputedly the rainiest spot in the world.

The Gazetteer of India (1965) divides India into eight botanical regions:

(1) Deccan (2) Malabar (3) Indus plain (4) Ganga plain (5) Assam (6) Eastern Himalayas (7) Western Himalayas and (8) Andamans.

Deccan region comprises the entire comparatively dry elevated tableland of the Indian peninsula. Palms of different kinds are endemic to this region.

Malabar region covers the entire West Coast and the mountains of the Western Ghats. This is a region rich in tropical vegetation. The forest areas abound in hardwood, like rosewood, iron-wood and teak with numerous varieties of soft wood and bamboos of different kinds.

Indus region comprises the plains of Punjab, Rajasthan, Yamuna river, Kutch and northern Gujarat. This is very poor in endemic plants.

Ganga region covers the entire area from Yamuna to Bengal and Orissa. Here the forests are of widely differing types Sal forests however dominate.

Assam region is made up of the Brahmaputra and Surma Valleys with the intervening hill ranges. Here the vegetation is luxuriant, with tall savanna grass, broad leaved forests and thick clumps of bamboos

Eastern Himalayan region sweeps eastward from Sikkim and embraces Darjeeling, Kurseong and other places. About 4,000 species of flowering plants including 20 palms, are estimated to occur in this region. In the temperate zone of this region, we find different broad leaved species, many laurels and maples, alder, birch, conifers and junipers. Rhododendrons, dwarf willows and bamboos are other plants that abound in this region.

Western Himalayan region extends from the Kumaun Hills to Kashmir.

The lower zone of this region is practically covered with sal forests, except where the savannah lands break up the sal belt. Among palms, only 5 species occur in this region *The temperate zone* of this region contains forests of conifers and broad-leaved temperate trees. Higher up, appear deodar, spruce and silver fir. *The alpine zone* extends from the upper limit of the temperate zone, to about 4,500 m.

or higher. The characteristic trees of this area are silver fir, silver birch and junipers.

Andaman region comprises the islands of Andaman and Nicobar. The main types of forests in this region are mangrove forests, beach forests, evergreen, semi-evergreen and deciduous forests.

Fauna

Mammals. The Indian mammalian fauna exhibits a great diversity in form. But certain groups like the duckbill, spiny ant-eater, kangaroo, opossum, koala, camel*, giraffe, zebra, hippopotamus, seals and walruses are completely absent in India.

Shrews, moles, hedgehogs, flying lemurs, bats ranging from big fruit-bats with big wing span to tiny pipistrelles, monkeys, gibbons and langurs form the major group of mammalian animals in India. The pangolin (scaly ant eater) is represented in India by a single family, *manidae*, with a single genus, manis and three species.

The higher simian apes like the gorilla, chimpanzee and orgng-utan are not found in India.

Carnivora. Two types of wolf are found in India, the woolly wolf of Western Himalayas, and the small Indian wolf which is seen throughout India. The jackal, is the commonest of, the canidae, being found in almost all villages, near hilly or forest areas. Four species of fox and several races of the Indian wild dog are found in jungle areas.

The sloth bear or the common black bear, is found throughout India; and the snow, red or brown bear and the great Asiatic black bear in the Western Himalayas.

There is only a single specie of panda, but 18 species of martens, weasels, and others. Civets (civet cats) linsangs and mongooses of which there are 18 species are found all over India. The Indian or striped hyena is the only species of the family in India and is found in almost all the forests.

There are four species of panthers, the common leopard found all over India, the all black and albino leopards, both of which are aberrations but are often found and the snow leopard seen only in the Himalayas.

The *tiger* is the monarch of almost all Indian forests and very often a terror-striking animal, especially when it turns man-eater as it sometimes does.

The Board of Wild Life has recently declared Tiger as the national animal of India and a special project called 'Project Tiger' has been launched by the government to protect this fast-dwindling specie (see Wild Life, Infra).

Asiatic lion, once rampant in north India, disappeared towards the end of the 19th century, leaving barely a dozen head in the Gir forest in Kathiawar in 1880. Since then, the stringent protective measures adopted by the government, have increased the lion population to as much as 290 in 1965.

India has different varieties of cats, the Indian desert cat, the common jungle cat, the leopard cat and the fishing cat. The lynx is found in Kashmir while the caracal is found in northwestern India. The clouded leopard, a rare species is found only in the Himalayas. The cheetah or the hunting leopard, one of the fastest runners known has practically disappeared from India.

Herbivora. The Indian elephants rule the forests of peninsular India. Being quite intelligent and amenable to training they are caught and used for hauling logs from inaccessible forests. They are also used in India for ceremonial purposes. The great Indian one horned *rhinoceros* was on the verge of extinction when the government stepped in and provided sanctuaries for them. There are now more than 400 of them in the sanctuaries.

Horses are not indigenous to India, and of asses, only a single species is found. Two species of pigs are found, the wild boar and the pygmy hog Mouse deer, spotted deer, barking deer and sambar are found all over India. The musk deer is confined to Kashmir. The Kashmir stag or haugul once abundant is now a disappearing family with hardly 550 heads left. It is now a protected animal The four-horned antelope, the Indian bison, black buck, and Indian gazelle are common all over India. The Indian buffalo in wild state is found in Nepal, Assam and Madhya Pradesh, while the Asiatic ibex is confined to the Himalayas. The nilgai or the blue bull is a large animal which is a pest to crops and ranges all over India, except Bengal and Malabar.

Gaur, wrongly called Indian bison is the tallest and the most handsome of the world's wild oxen. They are a special attraction in Bandipur and Mudumalai sanctuaries in the south

---

* Domesticated one-humped camels are used in north-western India as draught animals.

Reptiles. Only three species of crocodiles occur in India—the *gharial* found in a few rivers like the Indus, Ganga, Mahanadi and Brahmaputra, the *marsh crocodile* which is found all over India and the *estuarine crocodile,* that inhabits the mouths of rivers and canals near the sea. Alligators do not occur in India. About 50 species of *turtles, tortoise* and *terrapins* are known in India. Lizards of four types and snakes of many families appear in India. Among the common snakes of India are the rat-snake, the common wolf-snake and grass-snake.

The Indian python is the biggest Indian snake going up to some 20 feet in length and weighing around 200 lbs. It is a beautiful snake, which is found everywbere in India, in the high forests, humid low-lying swamps and the arid thorn-bush scrub jungles.

Among the deadly poisonous snakes are the krait of which there are eleven species, cobra, of which there are two varieties, the common cobra and the king cobra or Hamadrayad which grows up to about 4.5 metres. The vipers are represented by over 20 species, the commonest among them being Russels viper, saw-scaled viper and pit-viper.

Birds. It is estimated that there are 1,200 species of birds in India, which work out at about 14 per cent of the world total of 8,600. Together with their sub-species or geographical races, the Indian forms reach a total of 2,061. Of these about 1,750 are resident in India and the rest migratory.

The main orders are (1) divers,(2) grebes, (3) petrels and shearwaters, (4) tropic birds, boobies, frigate birds, pelicans, cormorants and darters—all fish eaters, (5) herons storks, ibises, flamingos, (6) ducks, geese and swans, (7) hawks. vultures, falcons, osprey—all birds of prey, (8) pheasants, junglefowl, spurfowl, partridges and quails—the so-called game birds, (9) button and bustard quails, cranes, rails, finfoot, bustards, (10) plovers, snipes, sandpipers, gulls and terns, (11) sandgrouse, pigeons and doves (12) parakeets, (13) cuckoos, (14) owls, barnowls and true owls, (15) frogmouths and nightjars, (16) tree swifts, and crested tree swifts, (17) Malabar trogon, Ward's trogon and the redheaded trogon (18) bee-eaters, rollers, hornbills, king fishers, (19) barbets, honey guides, wood peckers, (20) perching birds or song birds which cover more than half of the total Indian avifauna.

Indian peacock with blue plumage has been declared the National Bird and is now a protected species.

CLIMATE AND RAINFALL

THE latitudinal spread of the country and the altitudinal differences prevailing from area to area, have combined to create various climatic zones in the country. Parts of North India, for example lying below the Himalayas have strong winters and hot summers, while the south generally has no winters at all. Allowing for such deviations, the climate of India, may be broadly described as the tropical monsoon type. (See Flora & Fauna-Supra)

Temperature. Naturally enough, hill stations, coastal areas and plateau regions have differing temperature conditions. Hill stations like Darjeeling and Simla have the lowest temperatures, with an average temperature between 15.7° and 16.9° C. In coastal areas, Bombay on the west coast has an average temperature of 30.5° C, while Madras, on the east coast, goes up to 33.4° C. In the plateau, Dehra Dun records an avervage of 27.5° C. while Nagpur registers an average of 35.5° C. the highest average in all India.

Seasons. The Indian Meteorological Department recognises four seasons. (1) Cold weather season (Dec.-March). (2) Hot weather season (April-May),(3)Rainy season (June-Sept.) and (4) Season of retreating south west monsoon (Oct.-Nov).

Rainfall. In India, rainfall is erratic and ill distributed. It varies from place to place and from year to year. Areas like the West Coast, Bengal and Assam get the heaviest rainfall, with more than 80 inches annually. Places like Bombay, Madhya Pradesh and Bihar receive 40 to 80 inches rainfall. Madras, north western Deccan and upper Gangetic plain have 20 to 40 inches rainfall. The Rajasthan desert and the high Ladakh plateau of Kashmir receive only nominal rainfall, a mere four inches annually. At the other extreme, Cherapunji in Assam gets as much as 425 inches rainfall, the highest in all India.

A more important feature of Indian rainfall is that it is not evenly distributed all through the year, as in some other countries, England for example.

Rainfall Pattern in India and Britain

Period	*Percentage to India*	*the annual rain fall England & Wales*
June to Sept.	73.7	32.2
Oct. to Dec.	13.3	30.4
Jan. to Feb.	2.6	17.5
March to May	10 4	19.9
Total	100	100

RAINFALL IN INDIA

Season-wise Distribution*

Rainfall season	*Duration*	*Approximate percentage to the annual rainfall*
South west monsoon	June-Sept.	77.3
Post monsoon	Oct.-Dec.	13.3
Winter or north-east monsoon	Jan.-Feb.	2.6
Pre monsoon	Mar.-May.	10.4
	Total	100

Source: Directorate of Economics and Stastistics, Govt. of India Ministry of Food, Agriculture, Community Development and Co-operation.

THE MONSOONS

India is fed by two rain-bearing winds, the South-west monsoon and the North-east monsoon. The *South west monsoon* is the dominant monsoon in India. The *North east monsoon* comes after the south west. Compared to the South west, the duration of the North east is shorter. It is confined to a smaller area of the country and its rains are also less copious. But for some parts of the country, especially Tamil Nadu, the North east is the major monsoon.

The South west monsoon opens in Kerala, (south west coast of India) round about the beginning of June. Sometimes, it is early, sometimes late. In 1915, it was late as June 15, but in 1918 as early as May 19. The timing is important, for, by May the hot season will have reached its hottest and only the monsoon rains can relieve the scorching heat. In May 1972, for example, the temperature shot upto 45°-50° C. in most parts of India and sun-stroke deaths numbered 521. In 1973,again in May, the heat wave casualties in North India, came to 117.

1974

In 1974, the south-west monsoon kept up its schedule. It broke in Kearla in the last week of May a few days in advance of the traditional date-June 1. It came in full force on the 29th May in the proverbial manner— it never rains, but it pours. Cochin in Kerala, recorded a rainfall of 26 cm in 24 hours, on May 30th. But at another point of entry-Bombay- the monsoon dawdled. It started as usual on June 7, but the rainfall was poor. The total rainfall for the season, ending June 30 was below normal in Bombay- at 184.77 mm. The suburbs showed a heavier deficit.

The two openings showed up differently in the north west and north east India. The Kerala branch, moving in full force, unleashed a series of floods, in Assam, Bengal and Bihar. The Bombay branch moving north east, left much of Maharashtra, Gujarat, Rajasthan, some parts of UP., and most of the north-east, practically rain-less. The scanty Bombay branch was too feeble to support crops and brought about drought in a vast area. Thus, the experience of 1973 was repeated. While some parts of India baked in the sun, the other parts were inundated. When drought destroyed many crops in some places, floods washed them out in many others.

Assam suffered the first the dose of flood on June 20. The Brahmaputra swelled beyond danger point, at many places. Soon, the rest of north-west India was drowned in floods, Bengladesh and West Bengal suffering the worst. A new wave of flood broke out on July 1, a third wave on July 19 and a fourth on Sept.1, involving Bihar and Orissa too. Kerala, the first entry point for the monsoon, also got itself embroiled in a series of floods. A new feature of Kerala floods, was landslides all over the hilly regions. Excessive rains, are supposed to have caused such extensive land slips. These landslides have destroyed many homes and farms in addition to causing other casualties. As on July 31, the flood death roll rose to 146 all over India. Statistics of other losses, have yet to come.

If the floods have destroyed standing crops and current production, the drought menaced future crops. By the end of June, only about 40 per cent of the total net sown area, received sufficient rains for sowing. The rainfall increased In July, especially in and around Bombay. But the prospects of the kharif crop continued to be dismal.

THE PEOPLE

Pre-historic inhabitants

Evolution in India. It would appear that despite the hoary antiquity of India, no native race evolved on its soil. This is surprising because in the Mioecne age, the Siwalik hills on the southern slopes of the Himalayas teemed with primates, who appear to have been near-human anthropoids. Over 80 specimens have been recovered from the Siwalik hills. These have been classified under four genera-- *Sivapithecus*, *Sugrivapithecus*, *Bramapithecus* and *Ramapithecus*.

Bramapithecus and *Ramapithecus* apparently belong to the same specie.† *Ramapithecus*, with an arched palate and wide curved jaw is definitely man-like and is presumed to be the earliest ancestor of man so far known, that is to say, the first specie in the line of *hominidae* (human family). This specie is supposed to have lived 14 million years ago.

With the appearance of Ramapithecus, evolution in India seems to have stopped short. A wide gap of 12 to 13 million years intervenes before human life appears in India, in the Pleistocene age.

Early Inhabitants: All the early inhabitants of India had originally come from other lands. They have poured into India from primevel times. Many of them made India their permanent home. Some groups, especially among Negritos and Austrics, appear to have treated India as a half way house. They have stayed in India, long enough to develop some of their sailent characteristics and have then left for other lands And always, new waves of immigrants kept coming in. A slow but steady process of miscegenation took place with the result that the original racial characteristics became profoundly modified. A new common type, that can only be described as Indian has been evolved.

A common type is an amorphous conception, rather like the common man politicians talk about. Nevertheless, certain broad generalisations are possible. We may therefore, say that on the whole, the people of India are medium statured, mesocephalic (medium head), or dolichocephalic (long head) and mesorrhine (medium nose). But there are more dolichocephals (long head) in Peninsular India, while the extreme south has high percentage of brachycephals (broad head). In the north leptorrhine (long nose) is frequent among the higher castes while chamaerrhine (broad nose) is common among the lower castes. In north western India there is definite evidence of a round-headed population of the Alpine or Dinaric type. In north-eastern India some Mongoloid groups are predominantly round-headed while another group is medium long headed.

Ethnic Groups

According to Dr. B. S. Guha, Director of the Anthropological Survey of India, the population of India is derived from six main races with sub divisions as follows:

(1) The *Negrito* (2) The *Proto-Australoids* or *Austrics* (3) The *Mongoloid*, consisting of (i) *Paleo-Mongoloids* of both long-headed and broad-headed types and (ii) *Tibeto-Mongoloids*. (4) The *Mediterranean* or *Dravidian* comprising (i) *Paleo-Mediterranean* (ii) *Mediterranean* and (iii) *Oriental Mediterraneans*, (5) The *Western Brachycephals*, consisting of (i) The *Alpinoid* (ii) The *Dinaric* and (iii) The *Armenoid* types, (6) *Nordic Aryan*.

Negritos. Brachycephalic (broad headed) Negroids from Africa were the oldest people to have come to India These people are now found only in patches among the hill tribes of Scuth India (Irulas, Kodars, Paniyans and Kurumbas) on the mainland. But they survive in the Andaman Islands, where they have retained their language. They are an incousequential element in the population of India.

Proto-Austrialoids or Austrics. They were a race of people, with wavy hair plentifully distributed over their brown bodies, long heads with low foreheads and prominent eye ridges, noses with low and broad roots, thick jaws, large palates and teeth and small chins.

Austrics, according to some scholars, originally came from Indo China and South China and spread east into India, and south into Malaya and the islands beyond. Another view, which is more recent is that the Austrics are an old offshoot of the Mediterranean people who came into India from the west, probably before the Dravidians. Anyhow, the Austrics of India represent a race of medium height, dark (and in some cases black) complexion with long heads and rather flat noses but otherwise regular features Miscegenation with the earlier Negroids, may be the reason for the dark or black pigmentation of the skin and flat noses. Austric tribes spread over the whole of India and then passed on to Burma, Malaya and the islands of South east Asia. "The Austrics form the bedrock of the Indian people."*

---

† See Ramapithecus

The Austrics laid the foundation of Indian civilization. They cultivated rice and vegetables and made sugar from sugarcane. Their language has survived in the Kol or Munda speech, current in Eastern and Central India.

† **Dravidians** comprise all the three sub types, Paleo-Mediterranean, the true Mediterranean and Orienlal Mediterranean They appear to be people of the same stock as the peoples of Asia Minor and Crete and the pre-Hellenic Aegeans of Greece. They are reputed to have built up the city civilization of the Indus Valley, whose remains have been found at Mohenjo Daro and Harappa The Dravidians must have spread to the whole of India, supplanting Austrics and Negritos alike.

The Paleo-Mediterranean type, medium-statured, dark skinned, and of slight build is largely found in Karnataka, T. Nadu and Kerala. The true Mediterranean or European type, taller and fairer, occurs in the Punjab and Upper Gangetic Valley. The Oriental Mediterranean, commonly miscalled Semitic or Jewish, with fair complexion and pronouncedly longish nose is found scattered all over India in Punjab, Sind, Rajputana, UP and elsewhere.

Brachycephal groups both Alpine and Dinaric appear to have spread over the greater part of India, the dinaric type appearing in its purest form in Coorg but well marked in Bengal, Orissa, Kathiawar, Kannada and Tamil countries and the Alpine in Gujarat and in the West Coast of Maharashtra. The Parsees of Bombay, are a lately arrived brachycephalic group, allied to the Armenoids.

Mongoloids of various types are confined to the northeastern fringes of India, in Assam, Nagaland, Mizo, Garo and Jainti Hills. Generally, they are people of yellow complexion, oblique eyes, high cheek bones, sparse hair and medium height.

Nordic Aryans who migrated to India were a branch of Indo-Iranians, who had originally left their homes in Central Asia, some 5,000 years ago, and had settled in Mesopotamia and Iran for some centuries. The Aryans must have come into India between 2,000 and 1,500 BC. Their first home in India was western and northern Punjab, from where they spread to the valley of the Ganga and beyond. The Aryans, coming into India encountered the highly civilized Indus Valley people who had big towns, with fortifications and brick structures and many of the amenities of a quite high city civilization. The Indus people were essentially a city people while the Aryans were a pastoral race.

It is not known how the Indus Civilization collapsed. S.R. Rao of the Archeological Survey of India believes that the Indus Valley Civilization was not destroyed by the conquering Aryans but by natural calamities like floods. He claims to have deciphered the Indus Script. This claim has not yet been accepted generally.

But even though the Indus Valley Civilization disappeared, the Indus Valley people did not. The incoming Aryans must have by degrees, become intermingled with them and produced a new generation of people.

Gazetteer of India.

The term **Dravidian** is derived from the pre-Hellenic Lycians of Asia Minor who called themselves **Trmmili,** which the Greeks wrote as **Termilai. Termilai** became **Dramiza. Dramiza** evolved itself in two ways (1) In the South, among the Dravidians, the process was: **dramiza > damiz > Tamiz** (modern Tamil). (2) In the north, among the Aryans: **dramiza > dramila > dravida** (Dravidian).

POPULATION

THE first Census on an all India basis was taken in 1872. Thereafter, there had been regular decennial censuses in India, commencing from 1881. The population of India, as on April 1, 1971 was 547,949,809 --- Males 283,936,614 and Females 264,013,195.

India and the World. The present estimated population of the world is 3,710 million. On this basis India accounts for about one-seventh or 15 per cent of the world's total population. India ranks second among the countries of the world in population, the first being China, with 697,600,000.

The world's biggest state in point of area, USSR had a population of nearly 242 million in 1970*, less than half that of India (547 million), Canada, the world's second biggest state had a population of 20 million in 1966 less than that of Kerala (21 million), one of the smaller states of India. Australia, classed as a continent by dint of size had only 12 million in 1970, less than that of Punjab (13 million). Considering the fact that India occupies only 2.4 per cent of the world's total area (India-3.2 million sq kms) it is not surprising that population *has become* the No. 1 problem of India.

Density and Growth Rate

A study of the district-wise density and population figures shows that the hollow basin of thinly populated districts of Orissa, Madhya Pradesh, Rajasthan, etc is getting filled up rapidly while the densely populated belt of the Gangetic plain, the East Coastal region and the Southern Peninsula are showing distinctly poor growth rates. The northern districts of Kerala seem to be showing consistently high population growth rate despite their being densely populated† Similarly, the fairly densely populated belt of the Brahmaputra Valley in Assam has been showing high growth rates††. The Gangetic Plain districts seem to show a sign of saturation leading to its surplus population being siphoned to the sparsely populated regions of the country. In Peninsular India, the areas that have shown a potential of high growth rates of population almost invariably seem to contain a metropolitan city such as Chingleput-Madras region in Tamil Nadu, Hyderabad in Andhra-Pradesh and Bombay and Thana in Maharashtra.

Table 33

Density and Increase of Population (1921-1971)

Density		*Increase of Population*	
Year	*Per. sq. km.*	*Decade*	*Per cent increase*
1921	79		
1931	88	1921--31	11.0
1941	100	1931-41	14.2
1951	113	1941--51	13.3
1961	138	1951--61	21.6
1971	182†	1961--71	24.7†

† Density worked out after excluding the Population and area of NEFA and Jammu & Kashmir.

Sex Ratio

The sex ratio of the Indian population has generally been adverse to females, that is to say, the number of males has always exceeded that of the females.

Districts

Although males are in a majority in the country's total population, they are outnumbered by females in as many as 36 districts of the country, according to the final 1971 census figures.

Males are in an overwhelming majority in all cities and towns indicating that most of them had left their spouses in rural areas.

Females are in a majority in seven districts in U P, five in Kerala, three each in M. P, and Maharashtra, two each

---

Source: Pocket Book of population Statistics, Census Report. India.

This is mainly because of the emigration of many families from central Kerala to the northern districts, where virgin forest lands were available for cultivation. The emigration has taken place in quite recent times.

†† This is partly explained by the infiltration of many Muslim families from East Pakistan (Bangladesh).

in Orissa, and *T. Nadu* and one each in Andhra, Bihar, Gujarat, Himachal Pradesh, Manipur and Rajasthan.

Females outnumber males in the Union Territories of Dadra and Nagar Haveli, Daman, Diu, Karaikal, Mahe and Yanam.

Balaghat district in *M P* is the only district in the country where the sexes are nearly balanced. There are 488,790 female in the district for 488,793 males.

States

Among the States, Kerala has the unique distinction of having more females than males. The State's total population of 21,347,375 is composed of 10,759,524 females and 10,578,851 males.

Of the eleven districts of Kerala, females outnumber males in Cannanore, Malappuram, Palghat, Trichur, Alleppey, Quilon and Trivandrum. In other districts the males and females run a neck to neck race.

In *U P* females are in a majority in Chamoli, Tehri - Garhwal, Garhwal-Pithoragarh, Almora, Pratapgarh and Jaunpur. Bilaspur, Raigarh and Raipur are the three female majority districts in *M P.* In Maharashtra, females dominate in the districts of Kolaba, Ratnagiri and Satara.

Kutch district in Gujarat, Srikakulam in *A P* Saran in Bihar, Kangra in Himachal Pradesh, Manipur West in Manipur, Baudh Kaundmas and Ganjam in Orissa, Dungarpur in Rajasthan, Ramnathpuram and Tinnevelі in *T. Nadu* are the other female majority districts in the country.

Literacy

(Also see Education and Research infra)

The percentage of national literacy has steadily increased from 16.6 in 1951 to 24.03 in 1961, and to 29.3 in 1971. In absolute figures, however, the story is different. While there were only 298 million illiterates in 1951, there were 386 million in 1971, showing an increase of 88 million illiterates in 20 years.

Among the States and Union Territories, Chandigarh stands first in point of literacy, with 61.24 per cent—66.56 males and 54 13 females Kerala comes second with a total literacy percentage of 60.16—66.54 males and 53.90 females.

While the overall national literacy percentage stands at 29.3 the percentage of literates among males is 39.5 and that of females 18.5. Of the males, 61.5 per cent of the literates live in the urban areas and 33.8 per cent in the rural areas. Among females, 41.9 per cent literates are in the urban areas and only 12.9 per cent in the rural areas.

Urbanisation

India has over 108.8 million city dwellers, a number that exceeds the total population of UK, Canada, Japan and France. But even with such a record, India occupied a fairly low position in the degree of urbanisation.

India's urban population comes only to 19 87 per cent of its total population. Compared to the UK (78.87 per cent), Canada (73.58 per cent), France (69.97 per cent), Japan (68.09 per cent), the USSR (55.85 per cent) and even the Arab Republic of Egypt (41.64 per cent), India's 19.87 per cent city population is poor though more impressive than Sri Lanka (18.87 per cent) and Pakistan (13.57 per cent).

Leaving aside the Union Territories which are mainly urban in character, the most urbanised State in the country is Maharashtra where 31.2 per cent or nearly one third of the population live in the cities. This is closely followed by T. Nadu (30.28 per cent) and Gujarat (28 13 per cent). West Bengal and Karnataka come next with about 25 per cent. Among the least urbanised States are Himachal Pradesh 7.06 per cent, Orissa 8.3 per cent, Assam 8.4 per cent, Nagaland 9.9 per cent and Bihar 10 per cent.

The number of towns in India has increased from 2,700 in 1961 to 2,921 in 1971. Of these there are 142 class I towns with populations of 100,000 and above. Class II towns (50,000 and above) number 198, Class III (20,000 and above) 617, Class IV (10,000 and over) 931, Class V (5000 and over) 756 and class VI towns (less than 500) 277.

Among the states, with the highest number of towns (of all classes) Tamil Nadu comes first with 443 and Uttar-Pradesh second with 293 towns.

Table 34

Population of India, States/Union Territories, 1971

India/State/ Union Territory		*Persons*	*Population Males*	*Females*	*Scheduled Caste Population*	*Scheduled Tribe Population*
INDIA	Total	547,349,809	283,936,614	264,013,195	79,995,896	38,015,162
	Rural	438,855,500	225,218,984	213,636,516	70,441,388	36,720,681
STATES	Urban	109,094,309	58,717,630	50,376,679	9,554,508	1,294,481
1. A. P.	Total	43,502,708	22,008,663	21,494,045	5,774,548	1,657,657
	Rural	35,100,181	17,698,247	17,401,934	5,092,130	1,572,627
	Urban	8,402,527	4,310,416	4,092,111	682,418	85,030
2. Assam*	Total	14,957,542	7,885,064	7,072,478	912,639	1,919,947
	Rural	13,630,561	7,126,453	6,504,108	826,911	1,870,683
	Urban	1,326,981	758,611	568,370	85,728	49,264
3. Bihar	Total	56,353,369	28,846,944	27,506,425	7,950,652	4,932,767
	Rural	50,719,403	25,728,987	24,990,416	7,436,573	4,725,693
	Urban	5,633,966	3,117,957	2,516,009	514,079	207,074
4. Gujarat	Total	26,697,475	13,802,494	12,894,981	1,825,432	3,734,422
	Rural	19,200,975	9,842,483	9,358,492	1,328,000	3,507,152
	Urban	7,496,500	3,960,011	3,536,489	497,432	227,270
5. Haryana	Total	10,036,808	5,377,258	4,659,550	1,895,933	...
	Rural	8,263,849	4,420,225	3,843,624	1,698,626	...
	Urban	1,772,959	957,033	815,926	197,307	..
6. H. Pradesh	Total	3,460,434	1,766,957	1,693,477	769,572	141,610
	Rural	3,218,544	1,628,623	1,589,921	734,080	141,055
	Urban	241,890	138,334	103,556	35,492	555
7. J & K	Total	4,616,632	2,458,315	2,158,317	381,277	...
	Rural	3,758,411	1,996,864	1,761,547	349,684	..
	Urban	858,221	461,451	396,770	31,593	...
8. Karnataka	Total	29,299,014	14,971,900	14,327,114	3,850,034	231,268
	Rural	22,176,921	11,249,209	10,927,712	3,202,756	206,067
	Urban	7,122,093	3,722,691	3,399,402	647,278	25,201
9. Kerala	Total	21,347,375	10,587,851	10,759,524	1,772,168	269,356
	Rural	17,880,926	8,852,350	9,028,576	1,600,645	258,480
	Urban	3,466,449	1,735,501	1,730,948	171,523	10,876
10. M P.	Total	41,654,119	21,455,334	20,198,785	5,453,690	8,387,403
	Rural	34,869,352	17,823,411	17,045,941	4,769,158	8,244,072
	Urban	6,784,767	3,631,923	3,152,844	684,532	143,331
11. Maharashtra	Total	50,412,235	26,116,351	24,295,884	3,025,761	2,954,249
	Rural	34,701,024	17,482,020	17,219,004	2,279,026	2,825,955
	Urban	15,711,211	8,634,131	7,076,880	746,735	128,294
12. Manipur	Total	1,072,753	541,675	531,078	16,376	334,466
	Rural	931,261	470,231	461,030	15,802	319,516
	Urban	141,492	71,444	70,048	574	14,950
13. Meghalaya	Total	1,011,699	520,967	490,732	3,887	814,230
	Rural	864,529	441,533	422,996	1,673	747,113
	Urban	147,170	79,434	67,736	2,214	67,117
14. Nagaland	Total	516,449	276,084	240,365	..	457,602
	Rural	465,055	241,171	223,884	..	438,218
	Urban	51,394	34,913	16,481	..	19,384
15. Orissa	Total	21,944,615	11,041,083	10,903,532	3,310,854	5,071,937
	Rural	20,099,220	10,041,023	12,058,197	3,103,244	4,924,582
	Urban	1,845,395	1,000,060	845,335	207,610	147,355

Includes Mizo district, now constituted as Union Territory of Mizoram.

(Table contd.)

ndia/State/ Union Territorry			*Population*		*Scheduled Caste Population*	*Scheduled Tribe Population*
		Persons	*Males*	*Females*		
6 Punjab	Total	13,551,060	7,266,515	6,284,545	3,348,217	...
	Rural	10,334,881	5,533,475	4,801,406	2,856,046	...
	Urban	3,216,179	1,733,040	1,483,139	492,171	...
7. Rajasthan	Total	25,765,806	13,484,383	12,281,423	4,075,580	3,125,506
	Rural	21,222,045	11,060,995	10,161,050	3,493,437	3,057,790
	Urban	4,543,761	2,423,388	2,120,373	582,143	67,716
8. T. Nadu	Total	41,199,168	20,828,021	20,371,147	7,315,595	311,515
	Rural	28,734,334	14,438,727	14,295,607	6,050,302	294,379
	Urban	12,464,834	6,389,294	6,075,540	1,265,293	17,136
9. Tripura	Total	1,556,342	801,126	755,216	192,860	450,544
	Rural	1,393,982	717,227	676,755	182,667	445,059
	Urban	162,360	83,899	78,461	10,193	5,485
0 UP	Total	88,341,144	47,061,421	41,324,723	18,548,916	198,565
	Rural	75,952,548	40,214,012	35,738,536	17,147,032	182,768
	Urban	12,388,596	6,802,409	5,586,187	1,401,884	15,797
1 W. Bengal	Total	44,312,011	23,435,987	20,876,024	8,816,028	2,532,969
	Rural	33,344,978	17,173,552	16,171,426	8,093,232	2,475,625
	Urban	10,967,033	6,262,435	4,704,598	722,796	57,344
UNION TERRITORIES						
A & N Islands	Total	115,133	70,027	45,106	..	18,102
	Rural	88,915	53,195	35,720	..	18,099
	Urban	26,218	16,832	9,386	...	3
Arunachal Pradesh	Total	467,511	251,231	216,280	339	369,408
	Rural	450,223	239,369	210,854	335	365,939
	Urban	17,288	11,862	5,426	4	3,469
Chandigarh	Total	257,251	147,080	110,171	29,073	...
	Rural	24,311	14,444	9,867	5,273	..
	Urban	232,940	132,636	100,304	23,800	...
D & N Haveli	Total	74,170	36,964	37,206	1,332	64,445
	Rural	74,170	36,964	37,206	1,332	64,445
	Urban	...	...	...	..	...
Delhi	Total	4,065,698	2,257,515	1,808,183	635,698	...
	Rural	418,675	229,424	189,251	104,999	...
	Urban	3,647,023	2,028,091	1,618,932	530,699	..
Goa, Daman and Diu	Total	857,771	431,214	426,557	16,514	7,654
	Rural	630,997	310,909	320,088	10,809	5,824
	Urban	226,774	120,305	106,469	5,705	1,830
LM & A. Islands	Total	31,810	16,078	15,732	...	29,540
	Rural	31,810	16,078	15,732	...	29,540
	Urban	...	...	...	...	...
Pondicherry	Total	471,707	237,112	234,595	72,921	...
	Rural	273,419	137,783	135,636	57,616	...
	Urban	198,288	99,329	98,959	15,305	...

Table 35

Cities with Population of one million and above

Name of City	*1971 Provisional Population*			*Sex Ratio*	*Total Literates*			*Literacy Rates (%)*			*Total Population Final Figure*
	Total	*Males*	*Females*		*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	
1. Calcutta Urban Agglomeration (a)	7040345	4152322	2888023	696	4058593	2595512	1463081	57.65	62.51	50.66	7031382
2. Greater Bombay (b)	5931989	3447393	2484596	721	3798071	2486307	1341764	64·03	71·25	54.00	5970575
3. Delhi Urban Agglomeration (c)	3629842	2018852	1610990	798	2145215	1325514	819701	59.10	65.66	55.88	3647023
i) Delhi M. Corpn. (U)	3279955	1815662	1464293	806	1913899	1179481	734418	58.35	64.96	50.16	3287883
ii) New Delhi M. Committee	292857	167874	124983	745	197725	121843	75882	67.52	72.58	60.71	301801
iii) Delhi Cantt.	57030	35316	21714	615	33591	24190	9401	58.90	68.50	43.29	57339
4. Madras	2470288	1299756	1171502	902	1532859	915441	617418	62.05	70.48	52.70	2469449
5. Hyderabad Urban Agglomeration (d)	1798910	933581	865329	927	939234	578415	360819	52.21	61.96	41.70	1796339
6. Ahmedabad Urban Agglomeration (e)	1746111	953340	792771	832	1019065	630955	388110	58.36	66.18	48.96	1741522
7. Bangalore Urban Agglomeration (e)	1648232	879267	768965	875	981177	588235	392942	59.53	66.90	51.10	1653779
8. Kanpur	1273042	722643	550399	762	648041	421188	226853	50.90	58.28	41.22	1275242
9. Poona Urban Agglomeration (e)	1123399	603965	519434	860	n.a.	n.a.	n.a.	n.a.	n a.	n a.	1135034

(a) Includes 81 urban units which are contiguous to the core city of Calcutta.

(b) Greater Bombay Metropolitan area is synonymous with Greater Bombay District.

(c) Delhi Metropolitan city is comprised of the three statutory towns which are as indicated.

(d) Includes suburban units like Secunderabad Cantonment, Malakajgiri Bolaram, Osmania University area etc. which are contiguous to the core city of Hyderabad.

(e) Details of constituent units are not available.

Source: Registrar General and Census Commissioner of India.

Table 36

States and Union Territories* Comparative Ranking

Rank in 1971	*State/Territory*	*Population in 1971*	*Percentage to total population of India*	*Rank in 1961*
India		**546,955,945**	**100**	
1·	UP	88,129,453	16.14	1
2.	Bihar	56,387,296	10.31	2
3.	Maharashtra	50,295,081	9.20	3
4.	W. Bengal	44,440,095	8.12	5
5.	A P	43,394,951	7.93	4
6,	M P	41,449,729	7.58	7
7.	T. Nadu	41,103,125	7.51	6
8.	Karnataka	29,224,046	5.34	8
9.	Gujarat	26,660,929	4.87	9
10.	Rajasthan	25,724,142	4.70	10
11.	Orissa	21,934,827	4.01	11
12.	Kerala	21,280,397	3.89	12
13.	Assam	14,857,314	2.72	14
14.	Punjab	13,472,972	2 46	13
15.	Haryana	9,971,165	1.82	15
16.	J. & K.	4,615,176	0.84	16
17.	Delhi	4,044,338	0.74	18
18.	H. Pradesh	3,424,332	0.63	17
19.	Tripura	1,556,822	0.29	19
20.	Manipur	1,069,555	0.20	20
21.	Meghalaya	983,336	0.18	21
22,	Goa, Daman & Diu	857,180	0.16	22
23.	Nagaland	515,561	0.10	23
24.	Pondicherry	471.347	0.09	24
25.	NEFA	444,744	0.08	25
26.	Chandigarh	256,979	0.05	26
27.	A & N. Islands	115,090	0.02	27
28.	D. & N. Haveli	74 165	0.10	28
29.	L. M & A. Islands	31,798	0.10	29

---

* 1971 Provisional Census figures.

Table 37

Density Ranking*

(Density of Population of India 182 per sq. km.)

Ranking	*State/Territory*	*Density of population per sq.km. in 1971*	*Density of population per sq.km. in 1961*
1.	Delhi	2,273	1,792
2,	Chandigarh	2,254	1,052
3.	L. M. & A. Islands	994	831
4.	Pondicherry	982	787
5.	Kerala	548	435
6.	W. Bengal	507	394
7.	Bihar	324	268
8.	T. Nadu	316	259
9.	UP	300	250
10.	Punjab	268	221
11.	Haryana	225	172
12.	Goa, Daman & Diu	225	169
13.	Maharashtra	163	129
14.	A P	157	131
15.	Karnataka	152	117
16.	D. & N. Haveli	151	117
17.	Assam	149	112
18.	Tripura	149	107
19.	Orissa	141	113
20,	Gujarat	136	112
21.	M P	93	74
22.	Rajasthan	75	59
23.	H. Pradesh	62	51
24.	Manipur	48	35
25.	Meghalaya	44	33
26.	Nagaland	31	22
27.	A. & N. Islands	14	8

Table 38

Statement showing Growth of Population Statewise—1961-71 and its Comparison with 1951-61 Growth rate

India/State Territory and Other Area	*Percentage growh rate of population*		*Percentage variation of col. 2 over col. 3*
	1961-71	*1951-61*	
1	*2*	*3*	*4*
India	+24.57	+21.64	+13 59
	States		
AP	+20·60	+15.65	+31.63
Assam	+33.52	+35.06	—4.42
Bihar	+21.38	+19 77	+8.14
Gujarat	+29.21	+26.88	+8.67
Haryana	+31.36	+33.79	—7.19
H. Pradesh	+21.76	+17.87	+21.77
J. & K.	+29.60	+ 9.44	+213.56
Karnataka	+23.90	+21.57	+10.80
Kerala	+25.89	+24.76	+4.56
MP	+28.04	+24.17	+16.01
Maharashtra	+27.16	+23.60	+15.08
Nagaland	+39.64	+14.07	+181.73
Orissa	+24.99	+19.82	+26.08
Punjab	+21.00	+21.56	—2.60
Rajasthan	+27.63	+26.20	+5.46
T. Nadu	+22.01	+11.85	+85.74
UP	+19.73	+16,66	+18.43
W. Bengal	+27 24	+32.80	—16.95

Territories

A.&N. Islands	+81.11	+105.19	—22 89
Chandigarh	+114.36	+394 13	—70 98
D & N Haveli	+27.95	+39.56	—29.35
Delhi	+52.12	+52.44	— 0 61
Goa, Daman & Diu	+36.78	+5.14	+61.56
L. M. & A. Islands	+31.90	+14.61	+118.34
Manipur	+37.12	+35.04	+ 5.94
Meghalaya	+32 02	+25 97	+25.72
NEFA	+32.14	...	...
Pondicherry	+27.71	+16.34	+66.52
Tripura	+36.32	+78.71	—53.86

Table 39

Literacy Ranking

Ranking in 1971	*State/ Territory*	*Literacy rate in 1971*	*Literacy rate in 1961*	*Ranking in 1961*	*Percentage increase of literacy*
India		29.35*	24.03	..	+22.14
1	Chandigarh	61.24	51.06	2	+19.94
2	Kerala	60 16	46.85	3	+28.41
3	Delhi	56.65	52 75	1	+ 7.39
4	Goa, Daman & Diu	44 53	30.75	7	+44.81
5	A & N. Islands	43.48	33.63	5	+29.29
6	L. M. & A Islands	43.44	23.27	15	+86.68
7	Pondicherry	43 36	37.43	4	+15.84
8	T. Nadu	39·39	31.41	6	+25.41
9	Maharastra	39.06	29.82	10	+30.99
10	Gujarat	35.70	30 45	8	+17.42
11	Punjab	33.39	26 74	13	+12.87
12	W. Bengal	33.05	29.28	11	+12.88
13	Manipur	32.80	30.42	9	+ 7.82
14	Karnataka	31.47	25.40	14	+23.90
15	H. Pradesh	31.32	21.26	17	+47.32
16	Tripura	30 87	20.24	19	+52.52
17	Assam	28.74	29.19	12	— 1.54
18	Meghalaya	28 41	18.47	21	+53.82
19	Nagaland	27.33	17.91	23	+52.60
20	Haryana	26.69	19.93	20	+33.92
21	Orissa	26.12	21.66	16	+20.59
22	AP	24.56	21.19	18	+15.9[illegible]
23	MP	22.03	19.13	25	+28 60
25	UP	21.64	17.65	24	+22.61
25	Bihar	19.97	18 40	22	+ 8.53
26	Rajasthan	18.79	15 21	26	+23.54
27	J. & K.	18.30	11·03	27	+65 91
28	D&N Haveli	14.86	9.48	28	+56.75
29	NEFA	9 34	7.13	29	+31 00

* Figures include children in 0-4 age group

Source: Registrar General of India.

RELIGIONS OF INDIA

HINDUISM

The word *Hindu* or its derivatives do not find mention in any of the multitudinous books of the Hindu religion Nor has the use of the word, any sort of religious sanction. The word, as applied to religion, has came into use, only in recent times. Originally, the word *Hindu* was the Persian rendering of the Indian word *Sindhu*—the Sanskrit name of the river Indus. The Persian name *Hindu*, must have come into being in the 6th century BC, when the territory round Indus formed part of the Persian Empire. But the name disappeared from India, with the exit of the Persians. It came back to India, centuries later, with the Muslim invasions from the north-west. At that time, however, the word *Hindu* simply meant *Indian* and had no religious connotation. Subsequently, under the Mughal Emperors, the word assumed a religious tint and under the British it came to be applied exclusively to the people, who followed the age old religion of India.

Early Vedic Literature

The basis of Hinduism lies in the four *vedas* of the Aryans The word *veda* is derived from *vid*, to know The vedas are known as *sruti*, or that which is heard or revealed. The orthodox Hindus think that the vedas are *anadi*, without a beginning. Others believe that the vedas were revealed to ancient *rishis* (sages) The *Rig veda* is the earliest and the most important of the four vedas. It is the oldest scripture in the world having been composed in the third millennium BC. It consists of over 1,000 hymns, a heterogenous collection of prayers to gods like *Agni*, *Vayu*, *Varuna*, *Indra*, *Mitra*, *Soma*, *Ushas* and others, instructions on rituals, incantations, songs and verses on nature The other three vedas, are more specialised. The *Yajur Veda* deals mainly with sacrificial invocations, and the *Atharva Veda* deals with magical incantations and medicines.

Each veda is divided into *mantras* (hymns), *Brahmanas* which explain the mantras and rituals, *Aranyakas*, mystic teachings meant for meditation in forests and *Upanishads*, speculations on Being and Reality. *Upanishad* literally means, sitting down near and signifies a master-pupil relationship. The Upanishads are otherwise known as *Vedanta (anta* means end) since they occur at the end of the vedas. According to Dr. Radhakrishnan. they number more than 200 though Indian traditions put them at 108. *Chandogya. Mandukya, Isa, Kena Katha, Mundaka, Svetasvatara, Taittirya, Bruhadaranyaka, Prana Aitareya* are among the better known Upanishads.

Smriti is what is remembered. It supports *Sruti.* It lays down the laws of individual and social life. While Sruti is immutable, Smriti is changeable, since laws must change according to the times. Among the more famous smritis are those of *Manu, Yajnavalkya, Parasara, Narada, Bhrigu. Viswamitra, Apastamba,* and *Bawdhyana.*

Vedangas, literally 'limbs or members of the veda' are meant to assist the study of the vedas and the performance of rituals. These include *Siksha* (phonetics and euphony) *Chhandas* (metre) *Vyakarana* (Grammar), *nirukta* (etymology, and glossary) *jyotisha* (knowledge of heavenly bodies, necessary for determining auspicious moments for sacrifices and other ceremonies and *Kalpa* (ceremonials).

Early Aryan religion. The early Aryan gods were deifications of natural forces, Indra, Agni, Varuna, Soma, Surya etc. They were worshipped with sacrifice. There were no temples or images. The sacrifices were performed on open altars, where a wood fire was lighted, and offerings of food and drink, in the shape of meat, fat, butter, milk, cakes of barley and the spirituous drink soma, were offered to the gods, who were supposed to dwell in the sky. This was the vedic rite of homa, the quintessence of vedic religion.

Transformation of Aryan religion. When the Aryans came to India, they encountered a highly civilised people—the Dravidians—the builders of the City Civilization of the Indus Valley. They defeated the Dravidians and probably enslaved them. But though superior in war, the Aryans, were far behind the Dravidians in culture. Before long, they succumbed to the superior culture of the pre-Aryans and adopted it for their own *Graecia, capta, ferum, victorem, cepit** 'Enslaved Greece made a slave of her rough conqueror). Just as the Greeks Hellenised old Aegean legends of gods and goddesses, the Aryans 'aryanised' the myths and legends of the Austrics and Dravidians and claimed them as their own.

Later Vedic Literature

The mainstay of popular Hinduism is the later vedic literature, which consists of the *puranas* (old stories) and *itihasas* (epics). There are 18 puranas: *Matsya, Markendaya, Bhagavata, Bhavishya, Brahma, Brahmanda, Brahmavaivarta, Vayu, Vishnu, Varaha, Vamana, Agni, Naradiya, Padma, Linga, Garuda, Kurma,* and *Skanda,* There are also a number of *upa puranas* or minor puranas. Some puranas are believed to date back to the pre-Christian era. But many are believed to have been written between the third and the seventh centuries AD.

The *puranas* largely draw upon the myths and legends of the pre-Aryan inhabitants of India—the Austrics and the Dravidians. They deal with the stories of creation, destruction and renewal of the universe, the genealogy of gods and Manus and with the solar and lunar race of kings. They combine history and legend. But it is hard to pick out historical facts from their legendary trappings

The *Itihasas* or epics are two—the *Ramayana* by Valmiki and the *Mahabharata* by Vyasa. Both these great works, drew their inspiration from pre-Aryan folk-lore. The story of Rama or the *Ramayana*, looks like a blend of three distinct stories of pre-Aryan origin, put together at different times and finally embellished as a national poem of epic dimensions. The *Mahabharata* on the other hand, embodies the legends of the Aryans and the non-Aryans and was created consciously as the national poem of a new Hindu nation of mixed orgin welded into one people under Brahmana guidance.**

The Hindu Religion

The popular gods of the early Aryans, Indra, Varuna, Agni, Soma, Surya and others yielded place in course of time to a group of more powerful and more personal gods, more profound and cosmic and more philosophical in conception—namely the puranic gods of Hinduism headed by *Siva-Uma* and *Sri-Vishnu*. *Siva* and *Uma* are clearly pre-Aryan gods. *Vishnu* was partly Aryan-a form of Sun god and partly Dravidian the blue sky god. *Sri* was an Aryan goddess to start with, the Indian counterpart of the European *Ceres*, but in her association with Vishnu as *Gajalakshmi*, she is indigenous and pre-Aryan. *Krishna* is a demon opposed to Indra in the Rig Veda but god of youth, in the Dravidian pantheon, who was later exalted as an incarnation of Vishnu.

---

* Horace, Epistles 2-1 line 156.

** S. K. Chaterjee—*Vedic India, (Bharat Vidya Bhavan.)*

The vedic religion considered Indra as the most prominent and the most powerful god and the Aryans eulogised him to a very high status in the Rig Veda. But he has been down-graded to an insignificant position in the Hindu pantheon, under the pressurising impact of Dravidian deities. *Ganesh*, the Elephant-headed god, to whom no hymn is addressed in the *Rig Veda*, has come to occupy such prominence among the Hindu gods that he is worshipped as the first Lord in all sacred ceremonies The worship of the banyan tree, the propitiation of deceased ancestors, the concept of *Yamaraj* the God of Death, the idea of divine incarnation in the form of *Matsya* (fish) and *Kachyap* (tortoise) and the stories of *Sesanaga* and *Hanuman* (monkey-god) are definitely pre-Aryan. Coconut (narikel or naryal), rice, betel leaf (tambul) etc. which were used in the pre Dravidian austroloid culture, as offerings to their gods, are not only retained but have become indispensable in Hindu rituals.

What ultimately happend was that the simple forms of nature worship, followed by the Aryans, was overwhelmed by the more sophisticated Dravidian culture Many social customs widely prevalent among modern Hindus, are conspicuously Dravidian and find no mention in the vedas. As a matter of fact, the basic framework of modern Hindusim is essentially pre-Aryan and pre eminently Dravidian. The Aryans adopted this pre Aryan fabric and proclaimed it as their own inheritance.

The outstanding instance of the Dravidisation of the Aryan religion is found in the preponderant place given to the *puja* form of worship compared to the Aryan *homa*. Puja rite, which involves, the offering of flowers, fruit leaves, water etc. to an image or symbol of divinity is characteristically Dravidian This is now the everyday form of worship for all Hindus—the homa being kept up artificially among limited groups of Brahmins or Kshatriyas. The imorimatur[4] or theological sanction for puja is found in the *Bhagavad Gita** which is the bed rock of Hinduism

"If any offers me with devotion, a leaf, a flower, a fruit or water, I receive that offered in devotion by the person whose soul is disciplined"; Gita IX, 26.

"The context" as Dr. S. K. Chatterjee says "makes it clear that here, we have an apology for non vedic worship *vis-a-vis* the vedic fire-sacrifice; this verse, in fact forms the great charter for the *puja* ritual within the *milieu* of Vedic Brahminism.†

The National Religion

Hinduism, emerged as the national religion by a brilliant synthesis of Aryan and non-Aryan ideas This ability to adopt or adjust alien ideas, has made Hinduism, a highly receptive and tolerant, religion. It is this receptivity that has helped it, to survive the onslaughts of other religions and influences, through centuries.

When Budhism rose as a challenge to orthodox Hinduism, Hinduism reacted by sanctifying Buddha as an *avatar* of Vishnu. Similarly, the Jain idea of non-violence or non injury to living things appealed to many people as a gospel of mercy, goodwill and fellowship with all living creatures. Hinduism took over the idea and worked it out as the doctrine of *Ahimsa*, which was elevated as the highest of all *dharmas*. In external trappings too, Hinduism established much common ground with Buddhism and Jainism. For example, the Bodhi Peepul) tree, under which the Buddha received enlightenment and the Asoka tree under which Mahavira received inspiration became as sacrosanct to Hindus, as they were to Buddhists or Jains. These trees are grown in many Hindu temples, as sacred trees, even today.

In spite of its great adaptability and accommodation, Hinduism has been rocked by dissensions and disputations The bitter struggle between *Vaishnavaties* and *Saivaites*, between supporters of the God Vishnu and devotees of the God Siva lasted for a long time. But this was rather a struggle for supremacy in the Hindu fold -never a segregation from it.

Like all old religions, the appeal of Hinduism has flagged and waned from time to time And from time to time reformers have sprung up-brilliant intellects and devout ascetics like Sankaracharya (8th century A. D)., Ramanuja (12th-century) and Madhwa (13th century) who have not merely restored popular faith, but also countered heretical or fissiparous tendencies, by a re-interpretation of Hindu philosophy and reformation of Hindu practices, to meet the demands of the times.

---

* Bhagavad Gita, occurs in the *Mahabharata*,

† Vedic Age P. 164.

Modern Hinduism. Modern Hinduism may be dated from the days of Sri Sankaracharya, more than 1,000 years ago Sankara lived in the 8th century A.D. He was born at Kaladi in Kerala, of a Namboodiri Brahmin family. He is by far the greatest of Hindu reformers. Before he died at the early age of 32, he travelled through India thrice debating with scholars and expounding his theory of *Advaita* or monism. He was not only a great thinker but also a great organiser Among the most durable monuments to his organising zeal are the famous monasteries of *Sringeri* in Karnataka, *Dwaraka* in Gujarat, *Puri* in Orissa and *Badrinath* on the snowy heights of the Himalayas. He purged Hinduism of many evil cults and practices. Thus, the worship of the Mother Goddess, who was called by many names—*Devi*, *Durga*, *Kali*, *Lakshmi*, *Parvati*, *Amba*, *Amman* etc—had degenerated into licentiousness Devi-worship, in the past was part of the *Sakta* cult with its five M's *matsya* (fish) *mamsa* (meat), *madya* (liquor) *mudra* (dance) and *mithuna* (copulation). Sankara reformed this cult and restored it to its original purity Similarly, he is said to have put down the *Kapalikas*, who indulged in human sacrifices to appease God Bhairava. Sankara thus rejuvenated Hinduism and gave it a new philosophy and a new look.

Ramanuja, the next great reformer lived in the 12th century A.D. He was born in Sriperumbadur in Tamil Nadu He modified Sknkara's philosophy of *Advaita* and preached a new philosophy *Visishtadvaita* or qualified monism. Ramanuja laid great emphasis on *bhakti-marga* or deliverance by way of devotion to a compassionate god, in contrast to *Karmamarga* or the way of deliverance by the performance of vedic rites.

Madhwa, born in 1238, near Udipi in Karnataka is the third of the great reformers, He is the supreme exponent of *dvaita* or dualism All these great reformers stressed the importance of *bhakti* or a devotion to a personal goo.

The renovation of Hinduism started by this great trio of the south, was continued by a number of saints and sages in the rest of India, Ramananda of Allahabad, Vallabhacharya of Benares, Namadeva of Maharashtra, (who unlike others came from a low caste) Mirabai of Rajasthan (a princess turned Sanyasin) Ekanath, Tukaram and Ramdas, all from Maharashtra, Surdas, the blind poet of Agra, Lalla of Kashmir, and others. All these saints and sages propagated the Bhakti movement by songs and other literary compositions in the regional languages. The adoption of the local vernaculars as the medium popularised the movement and spread it to every nook and corner of India, The institution of *Bhajna* or group singing of devotional songs, thus became established all over India.

The greatest of the bhakti leaders, and one of the greatest reformers of Hindu religion is Chaitanya (1485–1533), who hailed from a Brahmin family in Bengal. At the age of 24 he became a Sanyasin and spent the rest of his life, preaching the bhakti movement all over north India.

Organised work for the re-vitalisation of Hinduism,started with Swami Dayananda Saraswati (1824–1833). He founded the *Arya Samaj* and started the *Suddhi* (purification) movement, for the conversion of non Hindus to Hinduism. He was a great Sanskrit scholar and admonished his followers to go back to the Vedas His work was continued after his death by a number of people, the most famous among them, being Swami Sraddhananda

The next great reformer, in point of time, was Ramakrishna Paramahamsa (1836-1886). He was a poor priest in a temple of Calcutta, without any formal education, eastern or western. But he was a deeply religious man, who believed in the inherent truth of all religions. His catholicity, mysticism and spiritual fervour, attracted a small band of devoted disciples. They formed a Mission named after him the Ramakrishna Mission.

The most famous leader of the Mission was Narendranath Datta, an English-educated disciple of Paramahamsa. In later years, he became famous as Swami Vivekananda and carried the message of Hinduism to far off countries, like U. S. A. The Ramakrishna Mission stands for social and religious reforms, based on the ancient culture of India

Other Religions (See religions - World)

MAJOR RELIGIOUS COMMUNITIES

The major religious communities of India are the *Hindus*, *Muslims*, *Christians*, *Sikhs*, *Buddhists*, *Jains* and *Zorastrians*. Buddhists, Jains and Zorastrians are numerically insignificant but they are important in other ways and are therefore treated as major communities.

Hindus who total 547 million (547,949,809) account for 82.72 per cent of the total population of India. The States and Union Territories in which Hindus constitute less than 60 per cent population are: Kerala (59.41), Manipur (58.97), Punjab (37.54), Jammu and Kashmir (30.42), Arunachal Pradesh (21.99) Meghalaya (18.50), Nagaland (11.43) and Laccadive, Minicoy and Aminidivi Islands (4.86). In 38 districts out of the total of 356 in the country, the Hindus form less than 50 per cent of the population

The Scheduled castes, numbering 79 million, constitute 14.6 per cent of the population and the 37.9 million members of the Scheduled Tribes 6.93 per cent

Muslims numbering 61 million (61,417,934) form the second biggest community in India, but comprise only 11.21 per cent of the total population. The States and Union Territories in which their proportion is larger than the national average are: L.M & A Islands (94.37), Jammu and Kashmir (65.85), Assam (24.03), W. Bengal (20.46), Kerala (19.50), U. P. (15.48) and Bihar (13.48). There are 38 districts in the country in which Muslims form more than 20 per cent of the population.

Christians who number 14 million (14,223,382) is the third biggest community, although, they make up only 2.60 per cent of the total population. The southern States of Kerala, Tamil Nadu and Andhra Pradesh together account for more than 60 per cent of the Christians. The States and Union Territories in which more than a fifth of the population is made up of Christians are, Nagaland (66.76), Meghalaya (46.98), Goa, Daman and Diu (31.77), A. and N. Islands (26.35), Manipur (26.03) and Kerala (21.05).

Sikhs numbering 10 million (10,378,797) form 1.89 per cent of the total population. They are concentrated largely in Punjab which accounts for 78.62 per cent of the Sikh population in the country They constitute 60.22 per cent of the population of Punjab and 25.45 per cent of the population of Delhi (Union Territory) and 6.29 per cent of the population of Haryana.

Buddhists numbering 3 million (3,812,315) form only 0.70 per cent of the total population. Maharashtra accounts for over 85 per cent of the total Buddhist population of the country, though it forms only 6.47 per cent of the population of the State In Arunachal Pradesh 13.3 per cent of the population are Buddhists

At the district level, in the three well-known Buddhist districts of Lahaul and Spiti (61.53) in H. Pradesh, Ladakh (51.82) in Jammu and Kashmir and Kameng (37.98) of Arunachal pradesh, the Buddhists form a substantially large proportion

Jains numbering 2 million (2,604,646) make up 0.47 per cent of the population They are spread largely in the western part of the country, viz Maharashtra, Rajasthan and Gujarat But even in those States they form a very small proportion of the total population. The only States and Union Territories in which at least one per cent of the population are Jains-are: Rajasthan (1.99), Gujarat (1.69), Maharashtra (1.40) and Delhi (1.24). The Jains are essentially concentrated in urban areas.

Zorastrians, who number 91,266 (below a million) have been included under 'Other Religions and Persuasions' in the Main Census Table. They are concentrated in Maharashtra, (especially Bombay) where they total 72,266. Their next biggest concentration is in Gujarat where they number 15,131. All other states and territories, excepting Nagaland, Tripura and Arunachal Pradesh, have minor colonies of Zorastrians, ranging from a nominal 1 (one) in Assam and Punjab, to 585 in West Bengal

They form the single biggest segment in the category 'Other Religions and Persuasions' which account for more than 2 million (2,184,556) in the whole of India.

Table 40

Religions—Sex Ratio

Religious Community	*Persons*	*Males*	*Females*	*Sex Ratio (Females per 1000 males)*
Hindus	453,292,086	234,837,669	218,454,417	930
Muslims	61,417,934	31,961,789	29,456,145	922
Christians	14,223,382	7,161,792	7,061,590	986
Sikhs	10,378,797	5,583,846	4,794,951	859
Buddhists	3,812,325	1,942,757	1,869,568	962
Jains	2,604,646	1,342,870	1,261,776	940

Table 41

Percentage Distribution of Population by Religion 1971

India / State Union Territory	*Total Population*	*Hindus*	*Muslims*	*Christians*	*Sikhs*	*Buddhists*	*Jains*	*Other Religions and Persuasions*	*Religion not stated*
INDIA	100.00	82.72	11.21	2.60	1.89	0.70	0.47	0.40	0.01
STATES									
1. Andhra Pradesh	100.00	87.63	8.09	4.19	0.03	0.02	0.04	N	N
2. Assam*	100.00	71.04	24.03	4.46	0.08	0.30	0.09	N	..
3. Bihar	100.00	83.46	13.48	1.17	0.11	0.01	0.04	1.73	N
4. Gujarat	100.00	89.28	8.42	0.41	0.07	0.02	1.69	0.07	0.04
5 Haryana	100 00	89.23	4 04	0.10	6.29	0.01	0.31	N	0.02
6. Himachal Pradesh	100.00	96.08	1.45	0 10	1.30	1.04	0.02	0.01	N
7. Jammu and Kashmir	100.00	30.42	65.85	0.16	2 29	1 26	0.02	N	N
8. Karnataka	100.00	86.46	10.63	2.09	0.02	0.05	0.75	N	N
9. Kerala	100.00	59.41	19.50	21.05	0.01	N	0.02	N	0.01
10. Madhya Pradesh	100.00	93.68	4.36	0.69	0.24	0.20	0.83	N	N
11. Maharashtra	100.00	81.94	8.40	1.42	0.20	6.47	1.40	0.16	0.01
12. Manipur	100.00	58.97	6 61	26.03	0.10	0.05	0.13	7.75	0.36
13. Meghalaya	100.00	18.50	2.60	46.98	0.12	0.19	0.03	31.45	0.13
14 Nagaland	100 00	11.43	0.58	66.76	0.13	0.04	0.12	20.94	N
15. Orissa	100.00	96.25	1.49	1.73	0.04	0.04	0.03	0.42	N
16. Punjab	100.00	37.54	0.84	1.20	60.22	0.01	0 16	N	0.03
17. Rajasthan	100 00	89.63	6.90	0 12	1.33	0.01	1.99	0.02	N
18. Tamil Nadu	100.00	89.02	5.11	5.75	0.01	N	0.10	0.01	N
19 Tripura	100.00	89.55	6.68	1.01	0.02	2.72	0.02	...	..
20. Uttar Pradesh	100.00	83.76	15.48	0.15	0.42	0.05	0.14	N	N
21. West Bengal	100.00	78.11	20.46	0.57	0.08	0.27	0.07	0.44	N
UNION TERRITORIES									
1. Andaman and Nicobar Islands	100.00	60.92	10.12	26.35	0.75	0.09	0.01	0 10	0.66
2 Arunachal Pradesh	100.00	21.99	0.18	0.79	0.27	13.13	0.01	63.46	0 17
3. Chandigarh	100.00	71.68	1.45	0.97	25.45	0.04	0.39	0.02	N
4 Dadra and Nagar Haveli	100.00	95.83	1.00	2.58	N	0.10	0.41	0.03	0.05
5. Delhi	100.00	83.82	6.47	1.08	7.16	0.21	1.24	0.01	0.01
6. Goa, Daman and Diu	100 00	64.18	3.76	31.77	0 10	0.03	0.06	0.03	0.07
7. Laccadive, Minicoy and Amindivi Islands	100.00	4.86	94.37	0.75	0.01	..	..	0 01	..
8. Pondicherry	100.00	84.97	6.18	8 76	0.01	N	0.05	0.02	0.01

---

* Includes Mizo district, now constituted as Union Territory of Mizoram

N stands for Negligible.

Table 42

Distribution of Population by Religion, 1971

1	*Total Population* 2	*Hindus* 3	*Muslims* 4	*Christians* 5	*Sikhs* 6	*Buddhists* 7	*Jains* 8	*Other Religions* 9	*Religions not stated* 10
INDIA	547,949,809	453,292,086	61.417,934	14,223,382	10,378.797	3,812,325	2,604,646	2.184,556	36,083
STATES									
Andhra Pradesh	43,502.708	38,119,279	3,520.166	1,823.436	12,591	10.035	16,108	995	98
Assam*	14,957,542	10,625,847	3,594.006	667,151	12,347	45,212	12,917	62	170
Bihar	56,353,369	47,031,801	7,594,173	658,717	61,520	4,086	25,185	976,997	9,547
Gujarat	26,697,475	23,835,471	2,249,055	109,341	18,233	5,469	451,578	18,781	1.902
Haryana	10,036.808	8.956,310	405,723	9,802	631,048	845	31,173	5	128
Himachal Pradesh	3,460.434	3.324,627	50,327	3,556	44,914	35,937	626	319	42
Jammu and Kashmir	4,616,632	1,404,292	3,040.129	7,182	105,873	57,956	1,150	8	1,504
Karnataka	29,299.014	25,332,388	3,113.298	613.026	6.830	14,319	218,862	380	2
Kerala	21,347,375	12.683,277	4,162,718	4,494,089	1.284	605	3,336	562	1.357
Madhya Pradesh	41,654.119	39.024,162	1,815,685	286,072	98,973	81,823	345,211	836	5,079
Maharashtra	50.412,235	41,037,287	4,233,023	717.174	101.762	3,264.223	703,664	80,020	3,846
Manipur	1,072.753	632,597	70,969	279,243	1,028	495	1,408	83,167	1,369
Meghalaya	1,011,699	187,140	26,347	475,267	1,262	1,878	268	318,168	91
Nagaland	516,449	59,031	2,966	344,798	687	179	627	108,159	1,118
Orissa	21,944,615	21,121.056	326,507	378.888	10,204	8.462	6,521	91,859	...
Punjab	13.551,064	5.087.235	114.447	162.202	8,159,972	1.374	21,383	355	4.092
Rajasthan	25,765,806	23.093.895	1.778,275	30.202	341,182	3.642	513.548	4,339	723
Tamil Nadu	41,199,168	36,674,150	2,103,899	2.367.749	4.355	1,148	41.097	6,080	690
Tripura	1.556,342	1.393,689	103.962	15,713	318	42.285	375	...	...
Uttar Pradesh	88,341,144	73,997.597	13,676.533	131,810	369,672	39.639	124.728	423	742
West Bengal	44,312,011	34,611,864	9,064,338	251.752	35,084	121,504	32,203	194,126	1.140
UNION TERRITORIES									
Andaman and Nichobar Islands	115,133	70,134	11,655	30,342	865	103	14	1,264	756
Arunachal Pradesh	467,511	102,832	842	3,684	1,255	61.400	39	296,674	785
Chandigarh	257,251	184,395	3,720	2,504	65,472	92	1,016	..	5
Dadra and Nagar Haveli	74,170	71.075	740	1,198	3	73	303	21	37
Delhi	4,065,698	3,407,835	263,019	42,720	291,123	8.720	50,513	527	241
Goa, Daman and Diu	857,771	550,482	32,250	272,509	885	260	556	269	560
Lakshadweep	31.810	1,545	30,019	239	4	...	...	3	...
Pondicherry	471,707	400.793	29 143	41.296	51	21	237	107	59

---

* Includes Mizo District, a Union Territory of Mizoram from Jan. 21, 1972.

LANGUAGES OF INDIA

MOTHER TONGUES

India is a land of myriad tongues. The 1961 census showed a total of 1652 mother tongues, covering a population of 438 million. Mother tongue has been defined as the language spoken in childhood by the person's mother to the person, or mainly spoken in the household In other words, the language which people usually used in their homes–the home language–is taken as the mother tongue.

Linguistic Groups

The languages of India, have been evolved from four linguistic groups, which came into India with the Sino-Tibetan, Austric, Dravidian and Aryan races in very ancient times.

The earliest inhabitants of India are supposed to be Negroids They have lost their language on the mainland of India, but have retained it in the Andaman islands. The negroid language surviving in the Andamans, is conveniently called *Andamanese*. It is spoken by about 1000 speakers. The negroids on the mainland, caught in the welter of new incoming races, like the Sino-Tibetans, Austrics, Dravidians and Aryans were compelled to give up their original language, and to assimilate one or another of the new languages. These languages have interacted with one another through centuries and have produced the present linguistic divisions of India.

The two premier language families of India are the Dravidian and the Indo European families, both of which have influenced each other and have in turn been influenced by Sino-Tibetan and Austric tongues. It is easy to spot Sino-Tibetan and Austric borrowings in Dravidian and Aryan languages and mutual borrowings of the Dravidian and Aryan groups.

Other Language Groups

However, there are some languuges in India, which show no affinity to any of the four major linguistic groups. The *Nahali* for instance, a dialect spoken in Central India, obviously is a remnant of some other language, that must have come into India, at an unknown era in Indian history. It has not yet been indentified.

Indo-Aryan Family

Indo Aryan, the Indic branch of the Indo-European family, came into India with the Aryans. It is the biggest of the language groups in India, accounting for about 74 per cent of the entire Indian population.

The important languages in this group are:

1. **Western Punjabi** is spoken in the Western districts of Punjab. This is the old Indo-Aryan speech which has developed in its own homeland for 3,000 years. This has no notworthy literature. Speakers now use either Eastern Punjabi, Urdu or Hindi.

2. **Sindhi**, originally spoken in Sind, now in Pakistan, is now found in Wertern and Central India. In 1961, the major concentration of Sindhi speakers, was reported from Gujarat (5 lakhs) Maharashtra (3.5) Rajasthan (2.5) and Madhya Pradesh (2). Sindhi has recently been recognised as one of the National languages (see also National Languages).

3. **Eastern Punjabi**, spoken in and near Lahore(Pakistan) and Amritsar(India) may be treated as the standard form of the old Indo-Aryan language. This is written mostly in the Gurmukhi script, but Moslems show a preference for the Persian script and Hindus for the Nagari script. The question of script has been one of the major factors that have led to the division of old Punjab into (Sikh) Punjab and (Hindu) Haryana. Eastern Punjabi is a rich and vigorous language and has developed a high literature.

4. **Hindi** or Hindustani is now loosely used to describe all languages and dialects current in India to the east of Punjab and Sind, north of Gujarat and Maharashtra, west of Orissa and Bengal and south of Nepal. Strictly Hindi is limited to a narrower circle which involves two major divisions—Eastern and Western Hindi. **Eastern Hindi** or Kosali has 3 dialects (1) *Awadhi* or *Baiswari*,(the language of the great mediaeval poet Thulasidas). (2)*Begheli* and (3) *Chattisgarhi*. **Western Hindi** dialects include *Khariboli Hindi* (Delhi), *Bangaru*, *Brajbasha*, *Kanauji* and *Bundeli*. Hindi or Hindustani has produced two great literatures *Urdu* and (*High*) *Hindi*.

Both have the same grammer and the same basic vocabulary. They differ however in script and higher vocabulary. Urdu uses the Perso-Arabic script. It developed as a literary language in the 18th century, mainly under the patronage of the Mughal emperors. Hindi began to develop in the 19th century. It uses the Nagari script and has a preference for purely Indian words, in contra-distinction to the numerous Arabic and Persian words borrowed by Urdu.

5. **Bihari** is a name collectively applied to three dialects prevalent in and around Bihar—*Maithili*, *Magahi* and *Bhojpuri*. These dialects cover some 16 million speakers. Maithili (5 million) Magahi (3) and Bhojpuri (8 million). The official language of Bihar is Hindi in the standard Khari Boli form.

6. **Rajasthani** is a name adopted by Grierson, to indicate a group of languages in the territorial limits of Rajasthan. The important languages in this group are *Marwari, Malvi, Dhundari, Nimadi, Haranti* and *Banjari*. Marwari spoken at Jodhpur has a good literature. It is Marwari,which often passes for Rajasthani. The state language of Rajasthan is Hindi.

7 **Gujarati**, the state language of Gujarat, was allied to Rajasthani till about AD. 1500 Then, Gujarati came under the influence of Western Hindi and passed into the orbit of Hindi. Gujarati more or less developed on its own thereafter,

8. **Marathi**, the state language of Maharashtra is a rich language with a literature that goes back to the 12th century. It has two allied speeches *Konkani*, spoken in and around Goa and *Halbi* current in the Bastar district of Madhya Pradesh.

9. **Assamese**, the state language of Assam has developed through centuries of fusion with other languages. Though Aryan in origin, Assamese has been greatly influenced by speeches of the Austric and Sino-Tibetan family.

10. **Bengali**, the state language of West Bengal in India has a highly developed literature, one of the most advanced in the world.

11. **Oriya** is the state language of Orissa. Though an archaic language it has a quite extensive literature.

12. **Pahari** group consists of Himalayan dialects, current from Chamba, through Garhwal and Kumaon up to and including Nepal. The main speeches are *Garhwali, Kumauni, Chameali, Miendeali, Kului, Mahasu* and *Neapli*

13. **Kashmiri** belongs to the Dardic branch of the Indo-European family and not to the Indic branch. It has two major dialects—*Kashmiri* and *shina*. These languages have been subject to the influence of Sanskrit and Prakrit, to such a great extent that they can now be regarded as branches of the Indo—Aryan group.

14. **Sanskrit**, the classical language of India, represents the highest achievement of the Indo-Aryan languages Although, hardly spoken now a days, Sanskrit has been declared as a national language, under the constitution.

Dravidian Family

Dravidian languages form a group by themselves and unlike the Aryan, Austric or Sino-Tibetan speeches, have no relations outside the Indian subcontinent, that is, India, Pakistan and Bangladesh. The Dravidian family is the second largest group in India, covering about 25% of the total Indian population.

The Dravidian language came into India, centuries before the Indo-Aryan. It split into three branches in the Indian sub continent—(1) The northern branch comprised *Brahui* spoken in Baluchistan and *Kurukh* and *Malto* spoken in Bengal and Orissa (2) The central branch was composed of *Telugu*, and a number of dialects spoken in central India—*Kui, Khond, Holani, Konda, Gondi, Naiki, Parji, Koya* and others. (3) The southern branch was made up of *Tamil, Kannada, Malayalam, Tulu, Badaga, Toda, Kota* and *Kodagu*.

The outstanding languages of the Dravidian group are (1) *Telugu*, the state language of Andhra Pradesh is numericlly the biggest of the Dravidian languages. (2) Tamil, the state language of Tamil Nadu is the oldest and the purest branch of the Dravidian family. (3) **Kannada**, the state language of Karnataka, is another ancient Dravidian language that has developed individually. (4) **Malayalam**, the state language of Kerala, is the smallest and the youngest of the Dravidian family.

Austro-Asiatic Family

The Austro-Asiatic Family is a numerically minor language group, which commands around 6 million speakers, or 1.5% of the total Indian population. This family is represented in India by two branches, (1) Munda and (2) Mon Khmer, (1) **Munda or Kol** languages are spoken by the hill tribes in Bihar, Chota Nagpur, Orissa and Central India The important speeches of the Munda group are *Santali*, *Mundari, Ho, Bhumiji, Korku, Kharia* and *Sora* each spoken by more than a lakh of people.

(2) **Monkhmer** speeches include the *Khasi* group of languages in north-eastern India and *Nicobarese* of the Nicobar Islands. Khasi commands 3 or 4 lakhs speakers while Nicobarese has around 14,000.

The Austric languages have never been written down and have consequently had no alphabet. The European missionaries have tried to reduce some of these languages to some form of script in the 19 th century They have tried the Bengali, Nagari and Roman scripts, with indifferent success.

Khasi has accepted the Roman script, introduced by European missionaries. For *Santali*, the University of Calcutta has recognised all the three scripts—Nagari, Bengali and Roman.

Sino-Tibetan Family

The Sino-Tibetan family spreads over a vast area, in the north east, which are mountainous and sparsely populated. The Sino-Tibetan speakers, all told, come to a little over 3 million and form only 0.73% of the Indian population

Sino Tibetan family is represented in India by two branches (1) *Thai - Chinese* and (2) *Tibeto-Burman*. The Thai-Chinese branch has only one representative in India *Khamti*, which is spoken by a small tribe of about 300 in the extreme north-eastern frontier of India.

The Tibeto-Burman family is well represented by a number of languages. (1) **Bhotia** group of languages is found along the tracts to the south of the Himalayas from Himachal Pradesh in the west to Bhutan in the east. The main speeches of this group are *Ladakhi* spoken by more than 50,000, *Lahuri, Bhutani Sikkim, Bhotia* and *Balti*.

(2) **Bodo** group, includes, *Bodo, Meeh, Garo, Tripuri, Dmasa, Koch, Rabha,* and *Mikir*.

(3) **Naga** group consists of a number of speeches among which *Angami, Sema, Ao, Lotha, Mao* and *Konyak* may be mentioned.

(4) **Kuki-Chin** group consists of a number of well-known speeches of which Mathi or Manipuri deserves special mention. Manipuri is the state language of Manipur- Lushai-Mizo is numerically the biggest of the other languages, with speakers numbering about 2 lakhs. Next come *Paite, Hmau, Halam,* which belongs to the sub-group Thado and are each spoken by some 10,000 people.

(5) **Abor** group in the extreme north-east commands over a lakh of speakers. The main speeches in this group are, *Abor, Miu, Dafia, Aka, Mishmi,* and *Nokte*.

It is to be noted that all these languages, except Manipuri has not developed any literature whether oral or written. They continue as spoken tongues in small communities.

Immigrant Communities

Some communities long settled in India, have adopted Indian languages as their mother tongues. The *Parsees* for instance, speak Gujarati. The *Beni Israel* Jews of the Maharashtra, have given up their original Arabic in favour of the local language, Marathi.

Table 43

MOTHER TONGUES—1971 CENSUS*

Showing numerically important mother tongues at Country level as of 1971 with strength of speakers of 5000 and above arranged in descending order of population

Mother tongue	*Persons*	*Males*	*Females*
Hindi	153,729,062	82,348,830	71,380,232
Telugu	44,707,697	22,620,902	22,086,795
Bengali	44,521,533	23,092,124	21,429,409
Marathi	41,723,893	21,327,427	20,396,466
Tamil	37,592,794	19,026,145	18,566,649
Urdu	28,600,428	14,925,238	13,675,190
Gujarati	25,656,274	13,246,233	12,410,041
Malayalam	21,917,430	10,980,446	10,936,984
Kannada	21,575,019	11,027,864	10,547,155
Oriya	19,726,745	9,964,238	9,762,507
Bhojpuri	14,340,564	7,215,337	7,125,227
Punjabi	13,900,202	7,469,766	6,430,436
Assamese	8,958,977	4,687,944	4,271,033
Chhattisgarhi	6,693,445	3,291,959	3,401,486
Magahi/Magadhi	6,638,495	3,358,228	3,280,267
Maithili	6,121,922	3,120,975	3,000,947
Marwari	4,714,094	2,424,979	2,289,115
Santali	3,693,558	1,866,828	1,826,730
Kashmiri	2,421,760	1,299,487	1,122,273
Rajasthani	2,093,557	1,076,145	1,017,412
Gondi	1,548,070	766,888	781,182
Konkani	1,522,684	755,155	767,529
Dogri	1,298,855	677,189	621,666
Gorkhali/Nepali	1,286,824	725,412	561,412

---

* Provisional Figures,

Garhwali	1,277,151	607,253	669,898
Pahari	1,269,651	646,035	623,616
Bhili/ Bhilodi	1,250,312	631,002	619,310
Kurukh/ Oraon	1,240,395	619,823	620,572
Kumauni	1,234,939	599,326	635,613
Sindhi	1,204,678	621,499	583,179
Lamani/ Lambadi	1,203,338	617,580	585,758
Tulu	1,156,950	566,290	590,660
Bagri	1,055,607	528,197	527,410
Mewari	817,974	419,592	398,382
Sadan/ Sadri	807,184	406,073	401,111
Nimadi	794,246	400,391	393,855
Manipuri	780,871	392,230	388,641
Mundari	770,916	385,359	385,557
Ho	749,793	370,463	379,330
Malvi	644,032	327,880	316,152
Surgujia	536,271	268,672	267,599
Bodo/Boro	509,006	260,728	248,278
Khortha/ Khotta	503,760	260,660	243,100
Banjari	471,853	241,031	230.819
Kachchhi	470,991	232,275	238,716
Anga/ Angika	423,502	219,738	203,764
Garo	411,532	210,268	201,264
Khasi	384,006	191,012	192,994
Bundel-khandi	376,036	200,376	175,660
Kui	350,396	172,556	177,840
Halabi	346,259	172,366	173,893
Nagpuria	335,126	167,156	167,970
Harauti	334,377	173,450	160,927
Gojri	330,485	177,854	152,634
Korku	284,022	144,046	139,976
Lushai/ Mizo	270,312	133,362	136,950
Tripuri	268,948	137,700	131,248
Bhilali	246,724	124,253	122,471
Mandeali	241,443	118,651	122,792
Baghel-khandi	231,231	121,848	109,383
Barel	230,034	120,058	109,976
Savara	221,712	110,073	111,639
Munda	217,565	111,844	105,721
Koya	211,877	105,404	106,473
Mikir	198,973	102,206	96,767
Khond/ Kondh	195,409	97,039	98,370
English	191,579	98,416	93,163
Saurashtra	181,289	91,080	90,209
Mishing/ Miri	180,684	92,913	87,771
Pawari	176,018	91.015	85,003
Panchpargania	160,085	81,375	78,710
Surajpuri	159,677	82,415	77,226
Dhundhari	155,040	79,741	75,299
Kokna/Kokni/ Kukna	152,987	76,444	76,543
Chodhari	138,978	69,665	69,313
Awadhi	136,259	70,369	65,890
Gamti/Gavit	136,209	68,816	67,393
Abirani	132,522	66,283	66,239
Varli	113,291	56,493	56,798
Badaga	104,919	52,430	52,489
Bhatri	103,766	51,530	52,236
Khaira	102,712	49,944	52,768
Malpaharia	99,313	49,979	49,334
Mewati	94,087	49,524	45,163
Bhagalpuri	94,401	48,437	45,964
Kharia	88,389	44,044	44.345
Kol	82,904	41,288	41,616
Pnar/Synteng	82,493	40,757	41,736
Dangi	80.533	41,031	39,502
Marari	78,832	39,513	39,319
Maria	78,495	39,114	39,381
Dhodia	75,657	37,051	38,606
Reang	74,931	38,344	36,587
Kisan	73,847	36,830	37,017
Konyak	72,338	37,003	35,335
Coorgi/Kodagu	72,085	36,120	35,965
Bharmauri/ Gaddi	70.217	35,834	34.383
Karmali	69,620	34,638	34,982
Bajjika/ Vajjika	69,070	35,084	33,986
Chakama	68,711	35,698	33,013
Yerukala/ Yerukla	67,552	34,159	33,393
Kolami	66,868	34,101	32,767
Bilaspuri/ Kahluri	66,188	32,421	33,767
Ao	65,275	32,591	32,684
Sema	65,227	32,756	32,471
Kulvi	63,716	32,465	31,251
Haryanvi	62,790	32,626	30,164
Tangkhul	58,167	28,935	29,232
Kishanganjia	56,921	28,998	27,923
Ladakhi	56,737	28,662	28,075
Jaunsari	56,556	31,718	24,838
Siraji	56,135	28,485	27,650
Vasava	56,028	27,938	28,090
Kangri	55,386	27,935	27,451
Chambeali	52,973	26,676	26,297
Gurmukhi	52,882	30,702	22,180
Rabha	51,129	26,027	25,102
Kabui	48,600	23,599	25,001
Bhumij	46,244	22,697	23,547
Laria	46,108	22,471	23,637
Kinnauri	45,464	22,021	23.443
Mawchi	44,236	22,373	21,863
Lodhi	44,074	22,247	21,827
Bishnupuriya	43,813	22,170	21.643
Parji	43,676	21,855	21,821
Angami	43,569	21,978	21,591
Thado	42,344	21,007	21,337
Tibetan	41,725	22,616	19,109
Bhadrawahi	40,200	20,580	19,620
Balti	40,136	20,526	19,610
Hmar	38,207	19,634	18,573
Dimasa	37,900	19,065	18,835
Lotha	36,949	18,413	18,536
Adi Gallong/ Gallong	36,864	18,233	18,631
Jatapu	36,450	18,367	18,083

Vadari	35,900	17,935	17,965
Churahi	34,669	17,614	17,055
Kachari	34.609	18,002	16,607
Nissi	33,857	16,487	17,370
Madrasi	32,976	18,336	14,640
Sondwari	31,488	16,531	14,957
Kuki	30,254	15,442	14,812
Dhurwa	29,376	14,758	14,618
Wancho	28,649	14,575	14,074
Paite	27,157	13,640	13,517
Garasia	27,156	13,862	13,294
Adi	27,151	13,476	13,675
Braj Bhasha	25,864	13,714	12,150
Panwari	25,400	12,704	12,696
Bhotia	25,158	12,535	12,623
Kshatriya	25,066	12,813	12,253
Chakru/Chokri	24,953	12,775	12,178
Gujari	24,624	12,983	11,641
Nocte	24,330	12,088	12,242
Dorli	24,320	12,148	12,172
Haijong/Hajong	23,978	12,366	11,612
Monpa	23,921	12,030	11,891
Arabic/Arbi	23,318	12,739	10,579
Bihari	23,222	15,282	7,940
Pardesi	22,903	11,816	11,087
Jamatia	22,446	11,258	11,188
Tagin	22,077	10,876	11,201
Bangni	21,981	10,889	11,092
Kurmali Thar	21,328	10,650	10,678
Muwasi	21,120	10,433	10,687
Gawari	21,096	10,747	10,349
Khairari	20,849	11,024	9,825
Gadaba	20,414	10,270	10,144
Sangtam	19,998	9,758	10,240
Mao	19.968	9,900	10,068
Phom	18,017	9,408	8,609
Nicobarese	17,971	9,287	8,684
Adi Minyong/Minyong	17,016	8,453	8,563
Lahauli	16,749	8,429	8,320
Muzaffarpuria	16,305	7,898	8,407
Rajbangsi	16,079	8,452	7,627
Nishang	15,969	8,081	7,888
Chang	15,816	7,968	7,848
Multani	15,692	7,947	7,745
Konda	15,651	8,054	7,597
Parsi	15,463	7,902	7,561
Deori	14,937	7,723	7,214
Khandeshi	14,697	11,030	3,607
Sirmauri	14,542	7,508	7,034
Kheimnungan	14,414	7,535	6,879
Mahili	14,299	7,314	6,985
Korwa	14,240	7,182	7,064
Koda/Kora	14,141	7,121	7,020
Koch	13,842	6,871	6,971
Yimchungre	13,564	7,258	6,306
Punchhi	13,385	6,890	6,495
Apatani	13,083	6,616	6,467
Mech	12,919	6,830	6,089
Muria	12,898	6,427	6,471
Zeliang	12,891	6,393	6,498
Mogh	12,378	6,388	5,990
Vaiphei	12,209	6.165	6,044
Juang	12,172	5,984	6,188
Kishtwari	12,166	6,175	5,991
Bilaspuri	11,959	6,460	5,499
Lakher	11,867	5,871	5,996
Kaikadi	11,846	5,859	5,987
Bakerwali	11,621	6,068	5,553
War	11,517	5,655	5,862
Relli	11,151	5,469	5,682
Baigani	11,113	5,778	5,335
Hindustani	11,053	5,624	5,429
Lepcha	11,044	5,714	5,330
Madhesi	11,029	5,549	5,480
Chinese/Chini	10,958	6,362	4,596
Jaipuri	10,869	5,759	5,110
Yerava	10,867	5,627	5,240
Meithei	10,837	5,568	5,269
Paradhi	10,691	5,556	5,135
Khezha	10,667	5,441	5,226
Lalung	10,650	5,473	5,177
Pawi	10,560	5,096	5,464
Parsian	10,504	5,680	4,824
Tadavi	10,229	5,100	5,129
Kodu	10,182	5,047	5,135
Kamari	10,106	5,338	4,768
Shina	9,902	5,247	4,655
Pangwali	9,800	4,941	4,859
Zou	9,749	4,828	4,921
Maring	9,710	4,937	4,773
Baori	9,697	5,036	4,661
Koshti	9,445	4,674	4,771
Kalari	9,287	4.326	4,961
Paomei	9,188	4,531	4,657
Manjhi	9,155	4,889	4,266
Thar	8,792	4,293	4,499
Chungli	8,784	4,366	4,418
Dhandi	8,763	4,477	4,286
Afghani/Kabuli/Pashto	8,688	5,250	3,438
Rathi	8,669	4,468	4,201
Rengma	8,578	4,282	4,296
Gujjari	8,566	4,437	4,129
Khatri	8,423	4,184	4,239
Purbi	8,073	4,449	3,624
Nagri	8,012	4,218	3,794
Padari	7,927	4,191	3,736
Kuruba/Kurumba	7,903	4,207	3,696
Govari	7,893	3,938	3,955
Samantha	7,887	4,286	3,601
Pothwari	7,862	3,982	3,880
Kotvali	7,784	3.956	3,828
Kaman/Miju Mishmi	7,598	3,725	3,873
Kudubi	7,554	3,816	3,738
Naga	7.532	4,060	3,472
Idu Mishmi	7,531	3,459	4,072
Tharu	7,514	3,999	3,515
Hill Miri	7,337	3,600	3,737
Adivasi	7,275	5,036	2,239
Jashpuri	7,211	3,656	3,555
Halam	7,123	3,520	3,603
Nagarchal	7,090	3,668	3,422
Tangsa	7,071	3,441	3,630
Kom	6,969	3,485	3,484

Singraulia	6,958	3,528	3,430
Mathuri	6,621	3,396	3,225
Anal	6,592	3,230	3,362
Zemi Naga	6,472	3,185	3,287
Natakani	6,360	3,255	3,105
Dafla	6,331	3,176	3,155
Pania	6,325	3,127	3,198
Paola	6,225	3,060	3,165
Gangte	6,033	2,988	3,045
Portuguese	6,029	2,880	3,149
Kolchi	6,015	3,572	2,443
Islami	5,965	3,093	2,872
Ghati	5,961	3,218	2,743
Bhateali	5,907	3,061	2,846
Hazaribagia	5,570	2,914	2.656
Dhangri	5,492	2,712	2,780
Bharia	5,381	2,850	2,531
Naikadi	5,351	2,633	2,718
Chamari	5,324	2,797	2,527
Irula/Iruliga	5,300	2,722	2,578
Digaru/Taaon Mishmi	5,227	2,530	2,697
Rajputi	5,111	2,679	2,432
Mahl/Maldivian	5,035	2,245	2,790

Source: Language Handbook Mother Tongues in Census

II. National languages

India, never had a common language which was intelligible to the masses everywhere in India. For many years, Sanskrit remained a common medium. But it was the language of the learned classes and not of the masses. Under the British, English became a sort of lingua franca. Here again, it was restricted to the educated few.

When India became independent, the question of a common language, naturally, came up. With the blessings of Gandhiji and the support of the leading congress politicians, it was agreed that Hindi should be groomed as the common language of free India. At the same time, however, the Congress advocated the formation of linguistic states in India. This policy involved the recognition of regional languages as national languages.

The Constitution, therefore accepted all the major regional languages as national languages and Hindi as the official language of the union. This meant, that ultimately Hindi would emerge as the common language for all India.

As matters stand, the Constitution has recognised 15 languages. They are specified in the VIII schedule to the Constitution.

They are:— (1) Assamese (2) Bengali (3) Gujarati (4) Hindi (5) Kannada (6) Kashmiri (7) Malayalam (8) Marathi (9) Oriya (10) Punjabi (11) Sanskrit (12) Tamil, (13) Telugu, (14) Urdu (15) Sindhi.

Of the 15 languages listed, in the schedule, all except three— Sanskrit Kashmiri and Sindhi— are official languages of the various states.

1. Assamese

Assamese, an Indo-Aryan language is the official language of Assam State. More than 57 per cent of the population of Assam, speak Assamese. The rest of the population speak other languages like Bengali (about 17 per cent), Khasi, Bado, Garo etc. which are mostly the languages of neighbouring states.

Assamese has developed as a literary language from the 13th century. It has a fairly good literature.

2. Bengali

One of the leading Indo Aryan languages, is the official language of West Bengal. Bengali, is spoken by 86 million people, the majority of whom are now in Bangladesh, formerly East Pakistan.

Bengali emerged as a separate language around AD 1000. It is now one of the most advanced languages of India.

3. Gujarati

Gujarati, a member of the Indo-Aryan family is the official language of the state of Gujarat.

Gujarati started out as an independent language around AD 1200. It has progressed at a rapid pace and is now one of the most developed Indian languages.

4. Hindi

Hindi, numerically the biggest of the Indo-Aryan family, is the official language of the Government of India. According to the 1961 census Hindi was returned by a total of 133.5 million speakers This is exclusive of Bihari, Rajasthani, Urdu and Pahari languages, which would add up to another 60 million, bringing up the Hindi speaking population, close on to 200 million.

Among the various dialects of Hindi, the dialect chosen as official Hindi is the standard Khari Boli, written in Devanagari script. This speech was originally spoken in Delhi and some Western UP districts

From the literary point of view, the term Hindi, covers not only the Khari Boli form, but also a number of other dialects like Brajbasha, Bundeli, Awadhi, early Marwari of Rajasthan and the Maithili and Bhojpuri speeches of Bihar.

Hindi, in the standard Khari Boli form, is a late-comer on the Indian linguistic scene. It started developing, only in the second half of the 19th century. To-day, being the official language of six states and the Indian Union, Hindi is receiving high patronage. This patronage and support has encouraged the development of Hindi as a great literary language.

5. Kannada

Kannada, the official language of the state of Karnataka, belongs to the Dravidian family. The majority of its speakers, is found in Karnataka where they form more than 65 per cent of the population.

Kannada, as an independent language dates from the 9th century. It has rich literary traditions

6. Kashmiri

Kashmiri, a language of the Indo-Aryan group, is often taken as the state language of Jammu and Kashmir. Actually, Urdu is the state language of Jammu and Kashmir. Kashmiri is just one of the national languages recognised by the Constitution.

Kashmiri- speaking population in Jammu and Kashmir comes to about 55 per cent of the total population. Dojri, comes next with about 35 per cent, Pahari, Punjabi, Ladakhi, Gojri and Urdu were the other mother tongues returned in the 1961 census

Kashmiri literature goes back to AD 1200. It is comparitively a developed language. It is written, at present, in the Perso-Arabic script

7 Malayalam

Malayalam, a branch of the Dravidian family, is the official language of the state of Kerala. Malayalam struck out on its own by the 10th century AD. It is one of the most developed languages of India.

8. Marathi

Marathi, belonging to the Indo-Aryan stock is the official language of Maharashtra.

Though Marathi, separated from the main Indo-Aryan stock, at a very early date, its literary career began only in the 13th century. Since, then, it has made wonderful progress. It is today, a fully developed literature of the modern type.

9. Oriya

Oriya, a branch of the Indo-Aryan family, is the official language of the state of Orissa, where Oriya-speaking population comprise some 82 per cent of the population.

Oriya is found recorded as far back as the 10th century. But its literary career began only in the 14th century It has a fairly good literature

10. Punjabi

Punjabi belongs to the Indo-Aryan family and is the official language of the state of Punjab.

Punjabi, though a very ancient language, turned literary only in the 15th century. As a literary language, it had a poor record till the 19th century From the 19th century, Panjabi showed vigorous development in all branches of literary activity It is written in the Gurumukhi * script.

11. Sanskrit

Sanskrit, one of the national languages is also one of the oldest languages of the world - perhaps the very oldest to be recorded. It starts with Rig Veda, which appears to have been composed around 2000 BC Early Sanskrit is known as Vedic Sanskrit and covers the period between 2000 and 500 BC. Classical Sanskrit covers the period between 500 BC and AD 1000.

The contributions of Sanskrit to Indian culture and literature are immeasurably vast and profound. As R C. Nigam observes, "In the long sweep of its history, although without any chronological documentation, Sanskrit has set forth intensive literary activity, both in quantity, as well as in quality, in almost all departments of letters literature, philosophy, arts and science, even though a considerable lot of it, still continues in the form of manuscripts and a good deal appears to have been lost".

12. Sindhi

Sindhi, a national language, is a branch of the Indo-Aryan family. It is spoken by some 7 million people, of whom 5 1/2 million live in Sind (Pakistan), and the rest mostly in India According to the 1961 census, there were over a million Sindhi speakers in India.

Sindhi has preserved some of the archaic features of the old Indo-Aryan

---

* 'Gurmukhi' literally means 'from the face of the guru'. It is the name given to the script devised by the Sikh guru, Guru Angad in the 16th century. The Gurmukhi is based on the old Sharda script, which is related to the Nagari script.

language. It has two important dialects, *Vicholi* spokan in Hyderabad (Sind) and *Kacchi* spoken In Kutch, Gujarat. Sindhi uses the Perso-Arabic script in Pakistan. Speakers in India use the Devanagari script.

Sindhi has not developed any worthwhile literature.

13. Tamil

Tamil, the oldest of the Dravidian languages is the state language of Tamil Nadu. Tamil literature goes back to centuries before the Christian era. "In originality, though not in extent, Tamil literature stands by itself". It represents certain new literary types which are not found in Sanskrit and other Aryan languages. The language is spoken by 30 millions or more and judging by its modern publications, it is advancing at a fantastic pace.

14. Telugu

Telugu, numerically the biggest of the Dravidian languages, is the state language of Andhra Pradesh. It is ihe biggest linguistic unit in India, next to Hindi. Telugu is found recorded from the 7th century AD. But it was only in the 11th century, that it broke out into a literary Language.

15. Urdu

Urdu, the state language of Jammu and Kashmir, is also used as an additional official language in Uttar Pradesh. According to the 1961 census, Urdu is spoken by more than 23 million people in India.

The name Urdu is derived from '*Zuban - e - Urdu-Muala*' which means the language of the exalted camp or court. The exalted camp or court, is here intended to mean the camp or court of the ruling Sultans of Delhi.

Urdu and Hindi have proceeded from the same source, that is, from the Khari Boli speech of Delhi and surrounding areas. The Khari Boli was a spoken language which prevailed around Delhi, since the 13th century. The Sultans of Delhi, found it necessary to make use of the local vernacular. for purposes of administration. In course of time. a synthesis was effected between Persian, the official language of the Sultanate and Khari Boli speech of the native population. Thus, Khari Boli the spoken vernacular was transformed into a written language, by the use of Persian characters. By the 18th century, this hybrid language became the language of the people at court.

In the 19th century, when the Delhi Sultanate disappeared and the British became the rulers, Sir Sayyed Ahmed Khan (1817—1898) started a revival of Urdu, as the language of the Muslims in India. Modern Urdu, was thus born

Urdu has produced an extensive literature. Muslim speakers of Urdu, use the Perso-Arabic script while Hindus use the Devanagari script. Urdu is also written in Roman characters

Official Languages

In the federal set up of India, with various States using their regional languages, an inter-State or common language is an absolute necessity. The Constitution of India has ordained Hindi in the Devanagari script as the common language for all India, and Arabic numerals as the common numerals English which had so far functioned as the lingua franca of India, was to be retained as an official language until 1965 when it was to be completely replaced by Hindi as the official language.

Subsequent developments have turned the current in favour of continuing English as an additional official language, no definite date being fixed for its elimination and replacement by Hindi.

As matters stand the national languages listed in the Constitution remain the official languages in the respective States, while Hindi and English continue to be used for inter-State correspondence and for all-India use generally.

Official Languages (Amendment) Bill was approved by the Lok Sabha on December 16, 1967. The Bill among other provisions made either Hindi or English compulsory for all recruitment to Central services; correspondence in English was obligatory only between the Union and a non-Hindi speaking State; Hindi States corresponding with non-Hindi States could send their communications in Hindi supplying along with them English translations; translations in either English or Hindi as the case may be, would have to accompany the original communications between Ministers, Departments or Offices at the Centre, between a) Central Ministry or department or office and any corporation or company owned or controlled by it and between a Central corporation or company and its offices.

LANDMARKS OF INDIAN HISTORY

BC.	
4000—2000	Indus Valley Civilization.
2000-1000	Vedic Age—Aryan settlements in India—Composition of the Rig Veda, Yajur Veda, Sama Veda and Atharva Veda.
1000—500	Epic Age—Composition of the Sanskrit epics Ramayana and Mahabharata.
544 (?)	Nirvana of Budha, founder of Buddhism
528 (?)	Nirvana of Mahavira, prophet of Jainism
522	Darius of Persia conquers north-eastern India and converts it into a Persian satrapy.
326	Alexander invades India.
324	Rise of the Maurya dynasty.
273—232	The reign of Asoka.
187	Rise of the Pushyamitra dynasty.
44-49	Tamil Kings in Ceylon.
30	Rise of the Satavahana dynasty in the Deccan-Satakarne.
AD	
40	The Sakas or Scythians in power in the Indus Valley and Western India.
52	Parthian King Gondopharnes in North West India St. Thomas begins preaching in India
78	Saka Era begins.
98-117	Kanishka, the Scythian King establishes power.
320	Chandragupta I establishes the Gupta dynasty—Gupta Era begins.
360	Samudra Gupta conquers the whole of northern India and much of the Deccan.
380-413	Chandragupta Vikramaditya - The Golden Age of the Guptas-Literary Renaissance-Kalidasa and-other poets. Renewal of Hinduism
606	Accession of Harsha Vardhana.
609	Rise of the Chalukyas
622	Era of the Hejira
711	Invasion of Sind by Muhammad Bin Kasim.
753	Rise of the Rashtrakuta Empire.
892	Rise of the Eastern Chalukyas
985	The Chola dynasty—Rajaraja the Great.
1026	Sack of Somnath by Mahmud of Ghazni.
1191	Prithvi Raj Chauhan, King of Delhi, routs Muhammad Ghori—the first battle of Tarain.
1192	Muhammed Ghori defeats Prithvi Raj—second battle Tarain.
1206	Qutbuddin Aybek establishes the Slave dynasty at Delhi.
1221	Mongol invasion under Genghis Khan.
1232	Foundation of the Qutb Minar.
1288	Marco Polo visits India.
1290	Jalaludin Firuz Khilji establishes the Khilji dynasty at Delhi.
1320	Ghiyasuddin Tughluk founds the Tughluk dynasty at Delhi
1328	Mongolian invasion.
1333	Ibn Batutah arrives in India.
1336	Foundation of Vijayanagar (Deccan)
1398	Timur invades India.
1424	Rise of the Bahmini dynasty (Deccan).
1451	The Lodi dynasty Bahlul Lodi ascends the throne of Delhi.
1489	Adil Shahi dynasty at Bijapur.
1490	Nizam Shahi dynasty at Ahmadnagar.
1498	Vasco da Gama lands at Calicut.
1510	Portuguese capture Goa—Albuquerque, Governor.
1518	Kutb Shahi dynasty at Golconda.
1526	First Battle of Panipat—Babur defeats the Lodis—Establishment of the Mughal dynasty.
1530	Humayun succeeds Babur.
1538	Death of Guru Nanak.
1539	Sher Shah defeats Humayun and becomes emperor of Delhi
1555	Humayun recovers the Delhi throne from Eslam Shah, successor of Sher Shah.
1556	Death of Humayun - Accession of Akbar Akbar defeats Hemu at the second battle of Panipat
1564	Akbar abolishes 'Jizya' or poll tax on Hindus
1565	Battle of Talikota—An alliance of Muslim rulers in Deccan defeats and destroys Vijayanagar Empire

1571 Foundation of Fatehpur Sikri by Akbar.

1576 Battle of Haldighat. Akbar defeats Rana Pratap Singh of Mewar.

1582 Akbar proclaims Din Ilahi or Divine Faith—an attempt at synthesising Hinduism and Islam.

1597 Akbar completes his conquests. Death of Rana Pratap.

1600 English East India Company formed.

1602 Netherlands East India Company.

1605 Death of Akbar and the accession of Jehangir.

1609 The Dutch open a factory at Pulicat.

1611 The English establish factory at Masulipatam.

1627 Death of Jehangir- Accession of Shah Jehan—Birth of Shivaji.

1631 Death of Shah Jehan's wife Mumtaz Mahal—The building of the Taj.

1639 Foundation of Fort St. George, at Madras by the English.

1658 Aurangzeb becomes emperor of Delhi.

1664 Shivaji assumes royal title.

1679 Aurangzeb re-imposes Jaziya.

1707 Death of Aurangzeb.

1720 Accession of Baji Rao Peshwa at Poona

1739 Nadir Shah of Persia conquers Delhi.

1742 Marathas invade Bengal—Dupleix, French Governor of Pondicherry.

1748 First Anglo-French war.

1757 Battle of Plassey—English defeat Siraja Daulah-Mir Jafar, Nawab of Bengal.

1760 Battle of Wandiwash—English defeat French.

1761 Third Battle of Panipat—Ahmed Shah Abdali, the ruler of Afghanistan defeats the Marathas-Maratha imperialism checked

1764 Battle of Buxar—English defeat Mir Kasim

1765 English get Diwani Rights in Bengal, Biha. and Orissa—Clive, Governor in Bengal.

1766 English secure Northern Circars in the Carnatic.

1767-69 First Mysore war—The British conclude a humiliating peace with Hyder Ali of Mysore.

1772 Warren Hastings, Governor of Bengal.

1773 The Regulating Act passed by Parliament

1775-82 First Anglo-Maratha war. The Treaty of Salbai

1780-84 The second Mysore War. The English defeat Hyder Ali.

1784 Pitt's India Act.

1790 92 Third Mysore War between English and Tipu—An indecisive war concluded by the Treaty of Seringapatam,

1793 Permanent Settlement of Bengal.

1798 Marquess of Wellessley becomes Governor General of India.

1799 Fourth Mysore War—English defeat Tipu—Death of Tipu—Partition of Mysore

1801 English annex Carnatic.

1803 5 Second Anglo Maratha War. British under Sir Arthur Wellesley inflict a crushing defeat on the Marathas at Assaye.

1817 19 Marathas finally crushed by British forces.

1828 Lord William Bentinck becomes Governor General—Era of social reforms—Prohibition of Sati (1829) Suppression of Thugs (1837)

1831 Rise of the Sikhs under Ranjit Singh.

1845 46 First Anglo-Sikh War—Defeat of the Sikhs

1848 Lord Dalhousie becomes Governor General.

1848-49 Second Anglo-Sikh War—Sikhs defeated in battle.
(1849) British annex Punjab.

1853 First Indian Railway opened from Bombay to Thana.

1857-58 First war of Indian independence.

1858 British Crown takes over the Indian Government-Queen Victoria's Proclamation.

1861 Indian Councils Act—Indian High Courts Act—Indian Penal Code.

1868 Railway opened from Ambala to Delhi

1877 Delhi Durbar—The Queen of England proclaimed Empress of India.

1878 Vernacular Press Act.

1881 Factory Act—Rendition of Mysore Mysore State restord to its original ruler.

1885 First meeting of the Indian National Congress.

1892 Indian Councils Act to regulate Indian administration

1899 Lord Curzon becomes Governor General and Viceroy.

1905	First partition of Bengal.
1906	Foundation of the Muslim League.
1908	Newspapers Act.
1909	Minto-Morley Reforms
1911	Delhi Durbar — Removal of the Imperial Capital from Calcutta to Delhi—Partition of Bengal modified-Census of India.
1914-18	First World War.
1915	Defence of India Act.
1919	Montague-Chelmsford Reforms.
1920	The Khilafat Movement—Non-co-operation—Mahatma Gandhi leads the National Congress.
1921	Mopla rebellion in Kerala—The Prince of Wales visits India—Census of India
1930	Civil Disobedience movement—First Round Table Conference.
1931	Gandhi-Irvin Pact—Second Round Table Conference - Census of India
1932	Third Round Table Conference—The Communal Award -The Poona Pact
1935	Government of India Act.
1936	Death of King Emperor George V—Accession and abdication of Edward VIII—Accession of George VI.
1937	Inauguration of Provincial Autonomy—Congress ministries formed in the majority of provinces.
1939	Second World War opens.
1942	Quit India Resolution of the Congress (Aug. 8), followed by arrests of all national leaders, including Gandhiji
1946	Mutiny in the Indian Navy—Special Cabinet Mission to India—Cabinet Mission plan announced—Interim Government formed (2nd Sept.)—First meeting of the Constituent Assembly (9th Dec.)
1947	Lord Mountbatten, Viceroy of India—Mountbatten plan for partition of India—Indian Independence Act. (Aug. 15)—India becomes independent on Aug. 15.
1948	Assassination of Mahatma Gandhi (30th Jan,)—Death of M.A. Jinnah, Muslim League leader (11th Sept.)—Government of India occupies Hyderabad State (Sept.)
1949	New Constitution of India adopted (26th Nov.)
1950	Jan. 26th. The Constitution of India comes into force.

Note: Events since 1950 have been omitted here as they are current history. However, all important events will find reference in this book, under the appropriate headings.

CONSTITUTION AND GOVERNMENT

THE MAKING OF THE CONSTITUTION

THE Constitution of India was drawn up by a Constitutent Assembly which was initially summoned on Dec. 9, 1946 as a Constituent Assembly for undivided India. With the partition of India in June 1947, the delegates of the Pakistan areas ceased to be members of the Constituent Assembly. On August 14, 1947, the Constituent Assembly met again as the Sovereign Constituent Assembly for the Dominion of India under the presidentship of Sachidananda Sinha. On the demise of Sinha, Dr. Rajendra Prasad became the President of the Assembly. A draft Constitution was published in February 1948. The Constitution was finally adopted on the 26th Nov. 1949. It came into effect on 26th Jan. 1950.

The Preamble to the Constitution declares India as a Sovereign Democratic Republic and lays down the principles on which the Republic is founded.

Justice, social, economic and political: Liberty, of thought, expression, belief, faith and worship: Equality, of status and of opportunity: Fraternity, among all, assuring the dignity of the individual and the unity of the nation.

Structure

India, that is Bharat, shall be a Union of States (Art. 1. Part I). The States and Territories thereof shall be as specified in the first schedule (Art 2).

The Union is quasi federal in character, embracing a union of central government, and the governments of the states.

Distribution of Powers

The Union has 'exclusive power' to make laws on all matters in List I of the Seventh Schedule (Union List). Article 246 (1). The states have 'exclusive power' to make laws on all matters in List II (State List) Art. 246 (3). The Union and States have concurent powers to legislate on any matter, enumerated in List III-Concurrent List Art 246 (2).

Residuary Powers. The Union has 'exclusive power' to make laws on any matter not enumerated in the Concurrent List or State List (Art. 248 (1)).

In case of a conflict between union laws and state laws the union law shall prevail. (Art. 254).

Citizenship. Citizenship rights are given to every person who is born in India or either of whose parents was born in India, or who has been a resident of India for five years, immediately preceding the commencement of the Constitution.

Fundamental Rigths

Seven fundamental rights are granted to the citizens in Part III of the Constitution.

1. **Right to Equality.** All persons are equal before the law and shall be given equal protection of the laws (Art. 14). Discrimination against any citizen on grounds of religion, race, caste, sex or place of birth is prohibited (Art. 15). Equality of opportunity for employment is provided for all (Art 16). Untouchability is abolished and its practice, in any form is forbidden (Art 17).

2. **Right to Freedom** All citizens shall have the right to freedom of speech and expression, to assemble peaceably, to form associations or unions, to move freely through the country, to reside and settle in any part of India, to acquire hold and dispose of property and to practise any profession or to carry on any occupation trade or business (Art. 19) No person shall be deprived of his life or personal liberty, except according to the procedure established by law (Art 21).

3. **Right against Exploitation.** Prohibits traffic in human beings and all forms of forced labour (Art. 23). Employment of any child below 14 in factories, mines or hazardous jobs is forbidden (Art. 24).

4. **Right to Freedom of Religion.** Entitles all persons to freedom of conscience and the right freely to profess, practise and propagate religion (Art. 25). Every religious denomination or any section thereof shall have the right to establish and maintain institutions for religious and charitable purposes, to manage its own affairs in matters of religion, to own, acquire and administer movable and immovable property (Art. 26).

5. **Cultural and Educational Rights.** Any section of citizens, having a distinct language, script or culture of its own is entitled to conserve the same and no person shall be barred from any educational institution, maintained or aided by the state on grounds of religion, caste or language (Art. 29) All religions and linguistic minorities have the right to establish and administer educational institutions of their choice (Art. 30).

6. **Right to Property** No person shall be deprived of his property, save by the authority of law. No property shall be compulsorily acquired or requisitioned, save for a public purpose and for an amount which may be fixed by law (Art. 31).

7. **Right to Costitutional Remedies.** All citizens are guaranteed the right to move the Supreme Court by appropriate proceedings for the enforcement of the Fundamental Rights (Art 32)

Directive Principles

Directive Principles of State policy are contained in Part IV of the Constitution and lay down certain broad principles which the State shall endeavour to achieve. These provisions are not enforceable through courts of law They are nevertheless, fundamental to the governance of the country

The State shall direct its policy towards securing (1) an adequate means of livelihood for all citizens, (2) the equitable distribution of the material resources of the country, (3) prevention of concentration of wealth and means of production in the hands of a few, (4) equal pay for equal work, (5) the maintenance of the health and strength of workers from being endangered by work unsuited to their age or condition (Art. 39), (6) organisation of village panchayats (Art 40), (7) protection in case of unemployment, old age or sickness (Art 41), (8) just and humane conditions of work and for maternity relief (Art. 42), (9) a living wage and a decent standard of life to all works, (10) promotion of cottage industries (Art 43), (11) a uniform civil code for all India (Art. 44), (12) Free and compulsory education for all children until the age of fourteen, within a period of ten years from the commencement of the Constitution (Art. 45), (13) promotion of the educational and economic interests of the weaker classes, especially, those of Scheduled Castes and Tribes, (14) improvement in the level of nutrition and standard of living and public health, (15) prohibition of consumption of intoxicating drinks or drugs (Art 47), (16) organisation of agriculture and animal husbandry on modern lines, preservation and improvement of breeds and prohibition of the slaughter of cows and calves and other milch and draught cattle (Art. 48), (17) Protection and preservation of monuments, places or objects of artistic or historic interest, declared to be of national importance (Art. 49), (18) separation of the judiciary from the executive in the public services (Art. 50), (19) promotion of international peace and security (Art. 51).

The Union

The President. There shall be a President of India (Art. 52) who is the Executive head of State (Art. 53—(1) and the Supreme Commander of the Armed forces—Art. 53 (2). The President shall be elected from an electoral college consisting of (a) the elected members of both Houses of Parliament and (b) the elected members of the Legislative Assemblies of the States (Art. 54). The President shall hold office for five years—Art. 56 (1), and is eligible for re election (Art 57)

The Vice-President. The Vice-President shall be elected by the members of an electoral college consisting of the members of both Houses of Parliament—Art. 66 (1) The Vice-President may hold office for five years (Art 67), and shall be the ex-officio Chairman of the Council of States (Art. 64).

Council of Ministers There shall be a Council of Ministers with the Prime Minister at the head to aid and advise the President in the exercise of his functions—(Art. 74 (1) The Prime Minister shall be appointed by the President, and the other Ministers shall be appointed by the President, on the advise of the Prime Minister—(Art 75 (1). The Ministers shall hold office during the pleasure of the President—(Art. 75(2). The Council of Ministers (as at present constituted) consists of the Prime Minister and (1) Ministers who are members of the cabinet, (2) Ministers of State (Union Ministers) who are not members of the cabinet and Deputy Ministers

Administrative Organisation. A Secretary to Government is the administrative head of a ministry and the principal adviser of the minister. When the volume of work in a ministry exceeds the manageable charge of a Secretary, one or more wings may be established under a Joint Secretary. A ministry is divided into divisions, branches and sections functioning under Deputy Secretaries, Under Secretaries and Section Officers respectively.

The Parliament. There shall be a Parliament for the Union, which shall consist of the President and two Houses, the Council of States (Rajya Sabha) and the House of the People (Lok Sabha). Art. 79

The Council of States shall consist of not more than 238 elected representatives of States and Union Territories and 12 members to be nominated by the President (Art. 80). The House of People shall consist of not more than 500* members chosen by direct election from territorial constituencies in States and not more than 25 members to represent Union Territories. (Art. 81).

The Council of State, shall not be subject to dissolution but as nearly as possible one-third of its members shall retire, as soon as may be, after the expiry of 2 years. The House of the People, shall continue for 5 years (unless sooner dissolved) from the date of its first meeting and no longer and the expiry of the said period of five years, shall operate dissolution of the House (Art. 83). This mandatory provision of dissolution may be extended for an year due to emergency

Parliamentary Committees. The following committees are appointed to assist the Parliament in its deliberations. 1. Public Accounts Committee, 2. Estimate Committee, 3. Public Undertakings Committee, 4 Committee on Government Assurances.

Separation of Powers

In a presidential system of government like that of the USA, the three branches of government the Legislature, the Executive and the Judiciary are independent units. But in a parliamentary system like that of India the Executive is subordinate to the Legislature. The Judiciary alone functions as an independent branch

Supreme Court of India

Chapter IV Part IV of the Constitution deals with judiciary There shall be a supreme Court of India, consisting of a Chief Justice of India and other judges, Art. 124 (1) The Parliament has the power to increase the number of judges. (They are now 13). A judge of the Supreme Court is to be appointed by the President after consultation with the Chief Justices of India Art 124 (2). A Judge of the Supreme Court shall hold office until the age of sixty-five and can be removed from office by the President, only after an address by each house of Parliament supported by more than two-third majority of members present and voting.

---

* In 1973, there were 522 members in the Lok Sabha (506 from States and 16 from Union Territories). This deviation from the Constitutional provision of 500 for States, was occasioned by the conversion of the Union Territories of Himachal Pradesh, Meghalaya and Tripura into States.

The Supreme Court has both original and appellate jurisdiction The original jurisdiction is limited to questions between the Government of India and the States, or between the States per se and to such other questions which involve "the existence or the extent of a legal right" (Art 131). The Appellate Jurisdiction extends over all the High Courts in India (Art 132).

The Attorney General

The President shall appoint a person who is qualified to be appointed as a judge of the Supreme Court, to advise the Government of India on legal matters (Art 76). He has the right to speak in and otherwise to take part in the proceedings of either House and to be a member of any Parliamentary Committee but is not entitled to vote (Art 88).

The Comptroller General

There shall be a Comptroller and Auditor General of India who shall be appointed by the President. He shall only be removed from office in like manner and on the like grounds as a Judge of the Supreme Court. Art. 148 (1). He exercises a general control over the accounts of the Union and State governments. (Art. 149). He is not eligible for further office either in the Union or State governments, once he has retired. Art 148 (4).

The Election Commission is to supervise and control all matters relating to elections in the Parliament and State Assemblies and to the offices of the President and Vice-President Art. 324) The Election Commission may consist of the Chief Election Commissioner and such other Election Commissioners as the President may appoint from time to time When any other Election Commissioner is appointed the Chief Election Commissioner shall function as the Chairman of the Election Commission. The Chief Election Commissioner cannot be removed from office except in the same manner and on the same grounds as a judge of the Supreme Court. (Art 324).

State Governments

The system of government with States closely follows the pattern of the Union Government The expression 'State' does not include the State of Jammu and Kashmir, unless otherwise indicated (Art. 152)

Executive

The Governor of a State is the Executive head of the State government.(Arts 155 and 156). He is assisted by a Council of Ministers, with the Chief Minister at the head (Art. 163). The Chief Minister is to be appointed by the Governor and other Ministers are to be appointed on the advice of the Chief Minister.

Legislature

The Legislature of a State shall consist of the Governor and one or two houses of legislature, as the case may be. (Art 108). The following States have two Houses, the Legislative Council (Vidhan Parishad) and the Legislative Assembly (Vidhan Sabha). Andhra Pradesh, Bihar, Madhya Pradesh, Tamil Nadu, Maharashtra, Karnataka and Uttar Pradesh. The Legislative Assembly of a State may consist of not more than 500 and not less than 60 members. (Art. 170). The total number of members in the Legislative Council, if any, shall not exceed one third of the total number of members in the Assembly. (Art 171)

Judiciary

There shall be a High Court for each State, consisting of a Chief Justice and such other judges as the President may appoint, (Art. 214 and 216). A judge of the High Court can be removed from office by the President, in the same manner he may remove a judge of the Supreme Court, (Art. 217). The High Courts have original jurisdiction in such matters as writs and appellate jurisdiction over all subordinate courts in their jurisdiction.

Advocate General

Every State shall have an Advocate General, to advise the government on legal matters Art 165).

Union Territories

The Union Territories ordinarily have no Council of Ministers or legislatures of their own. But the Parliament may by law create for any of the Union Territories of Goa, Daman & Diu, Pondicherry and Mizoram a body whether elected or partly elected and partly nominated to function as a legislature for the Union Territory or a Council of Ministers or both. (Art, 239 A)

Official Language

Article 343 of the Constitution provides that the official language of the Union shall be Hindi in the Devanagari script and the form of numerals for official purposes, shall be the international form of Indian numerals; in other words, the Arabic numerals English, which was originally to continue as the official language only upto Jan. 26, 1965, will under the Official Languages Act, 1963 continue to be used even after that date in addition to Hindi

Amendment

Art. 368 deals with amendment of the Constitution. A Bill for Amendment must be passed in each House by a majority of the total membership of that House and by a majority of not less than two thirds of the members present and voting

Amendments to certain parts of the constitution, however, require ratification of the Legislatures of not less than one half of the States by resolutions to that effect.

Nothing in Art. 13. shall apply to any amendment made under this article (Art 368). This has special reference to the provision contained in Art. 13 (2) that the State shall not make any law, which takes away or abridges the Fundamental Rights enunciated in Part III (See Constitution Amendments infra).

SCHEDULES TO THE CONSTITUTION

First Schedule. Under Articles 1 and 4 gives a list of the States and Territories, comprising the Union,

States. 1 Andhra Pradesh 2 Assam 3 Bihar 4 Gujarat 5 Kerala 6 Madhya Pradesh 7 Tamil Nadu 8 Maharashtra 9 Mysore 10 Orissa 11 Punjab 12 Rajasthan 13 Uttar Pradesh 14 West Bengal 15 Jammu and Kashmir 16 Nagaland 17 Haryana 18 Himachal Pradesh 19 Manipur 20 Tripura 21 Meghalaya.

Union Territories 1 Delhi 2 Andaman and Nicobar Islands 3 Laccadive Minicoy and Amindiv Islands 4 Dadra and Nagar Haveli 5 Goa Daman & Diu 6 Pondicherry 7 Chandigarh 8 Mizoram 9 Arunachal Pradesh

Second Schedule Under Arts. 59 (3), 65 (3), 75 (6), 97,125 148 (3), 164 (5), 186 and 211 is divided into five parts, *A to E*

Part A fixes the remuneration and emoluments payable to the President and Governors The following emoluments per mensem shall be paid to the President: Rs 10,000. Governor of State: Rs. 5,500. The President and the Governors of the States shall also be paid such allowances as were payable respectively to the Governor General of India and the Governors of the corresponding provinces immediately before the commencement of this Constitution. **Part B** has been deleted by the Constitution (Seventh Amendment) Act of 1956. **Part C** contains provisions as to the Speaker and the Deputy Speaker of the House of the People and the Chairman and the Deputy Chairman of the Council of States and the Speaker of the Legislative Assembly and Chairman and the Deputy Chairman of the Legislative Council of State. **Part D** contains provisions as to emoluments of the judges of the Supreme Court and of the High Courts. Chief Justice of Supreme Court per mensem Rs. 5,000. Any other judge of Supreme Court per mensem Rs 4,000. Chief Justice of High Courts per mensem Rs 4 000. Any other judge of High Courts per mensem Rs. 3,500. **Part E** contains provisions as to the Comptroller and Auditor General of India. Pay per mensem Rs. 4,000

Third Schedule. Under Arts. 75 (4), 99,124 (6), 148 (2), 164 (3), 188 and 219, contains forms of Oaths and Affirmations

Fourth Schedule. Under Arts. 4 (1) and 80 (2) allocates seats for each state and Union Territory, in the Council of States.

Fifth Schedule. Under Art. 244 (1) provides for the administration and control of Scheduled Areas. This schedule, provides for amendment by a simple majority of Parliament and takes it out of the ambit of Art 368 (Amendment of the Constitution.)

Sixth Schedule. Under Arts.224 (2) and 275 (1) provides for the administration of Tribal Areas in Assam, Meghalaya and Mizoram. This is a lengthy schedule which goes into the details of the administration in the Tribal Areas concerned. This schedule can also be amended by a simple majority of Parliament.

Seventh Schedule. Under Art. 246 gives three Lists. 1. *Union List* gives 97 subjects in which the Union government has exclusive authority. 2. *State List* gives 66 subjects under the exclusive authority of State government, 3 *Concurrent List* contains 47 subjects, where the Union and States have concurrent powers.

Eighth Schedule. Under Arts. 344 (1) and 351 (1) gives a list of 15 languages listed as national languages. 1. Assamese, 2. Bengali, 3. Gujarati, 4. Hindi, 5. Kannada, 6 Kashmiri, 7. Malayalam, 8. Marathi, 9. Oriya, 10 Punjabi, 11. Sanskrit, 12. Sindhi, 13 Tamil, 14 Telugu, 15. Urdu.

Ninth Schedule. Under Art 3 (B) was added by the Constitution (First Amendment) Act 1951. It contains 71 Acts and orders relating to land, tenures, land tax, railways, industries etc. passed by the State governments, including Jammu and Kashmir, and the Union government which are beyond the jurisdiction of civil courts.

The relevant Art. 3 (B) reads as follows;: "None of the Acts and Regulations specified in the Ninth Schedule, nor any of provisions thereof shall be deemed to be void or ever to have become void on the ground that such Act, Regulation or Provision is inconsistent with or takes away or abridges any of the rights conferred by any provisions of this Part and notwithstanding any judgement, decree or order of any court or tribunal to the contrary, each of the said Acts or and Regulations shall, subject to the power of any competent Legislature to. repeal or amend it, continue in force".

The Poverty Line in India

According to a study made by the Federation of Indian Chambers of Commerce recently, the population below the poverty line in 1969 was 218.3 million out of 529.5 million or 41.2 per cent of the total population.

In absolute numbers, UP and Bihar lead, with 38.6 million and 27 million respectively. On a percentage basis, Orissa tops with 64.7 per cent Arunachal Pradesh comes next with 57.4 per cent and Nagaland third with 52.9 per cent

In ten other States, the percentage of people below the poverty line varies between 40 and 50: Andhra Pradesh 42.9, Assam 40.6, Bihar-49.4, Jammu and Kashmir 44.6 Karnataka 41.3, Madhya Pradesh-44.9 Manipur 42.7, Rajasthan 45.6, Uttar Pradesh 44.8 and T. Nadu 40.4.

The States and Territories having the highest per capita income compared to the national average of Rs. 589) showed the lowest percentage Punjab Rs 1,002) and Haryana (Rs. 903) among States, had 20.8 and 25.6 per cent respectively. Delhi (Rs. 1,185) and Goa Daman and Diu, (Rs. 1,130) among Territories had the lowest percentages, 12.2 and 14.8 respectively

PTI Report Oct. 15th, 1973.

States and Territories

The area and density of population in various States and Union Territories is shown in the table below. Madhya Pradesh covering an area of 442,841 sq, km. is the largest, and Uttar Pradesh with 88,341,144 inhabitants, the most populous State, The Union Territory of Delhi has the highest density of population accounting for 2,738 persons per sq km.

Table 44

State Union Territory	*Area sq. km*	*Population 1971*	*Density of population per sq. km.*
INDIA	3,280,483	547,949,809	178
States			
Andhra Pradesh	276,754	43,502,708	157
Assam	78,523	14,625,152	186
Bihar	173,876	56,353,369	324
Gujarat	195,984	26,697,475	136
Haryana	44,222	10,036,808	227
Himachal Pradesh	55,673	3,460,434	62
Jammu & Kashmir	222,236	4,616,632	N A.
Karnataka	191,773	29,299,014	153
Kerala	38,864	21,347,375	549
Madhya Pradesh	442,841	41,654,119	94
Maharashtra	307,762	50,412,235	164
Manipur*	22,356	1,072,753	48
Meghalaya*	22,489	1,011,699	45
Nagaland	16,527	516,449	31

Orissa	155,842	21,944,615	141
Punjab	50,362	13,551,060	269
Rajasthan	342,214	25,765,806	75
Tamil Nadu	130,069	41,199,168	317
Tripura*	10,477	1,556,342	149
Uttar Pradesh	294,413	88,341,144	300
West Bengal	87,853	44,312,011	504

Union Territories

Andaman & Nicobar Islands	8,293	115,133	14
Arunachal Pradesh¶	83,578	467,511	6
Chandigarh	114	257,251	2,257
Dadra & Nagar Haveli	491	74,170	141
Delhi	1,485	4,065,698	2,738
Goa, Daman & Diu	3,813	857,771	225
Lakshadweep	32	31,810	994
Mizoram††	21,087	332,390	16
Pondicherry	480	471,707	983

Provisional, as on 1 July, 1971.

* became a full-fledged State from 21st Jan. 1972.

¶ Originally called NEFA (North East Frontier Agency), was renamed Arunachal Pradesh when it was converted into a Union Territory on 21-1-1972.

†† The Mizo District of Assam became the Union Territory, Mizoram on 21-1-1972.

Table 45

Jurisdiction and Seats of the Higher Judicial Tribunals in India

Supreme Court of India	Jurisdiction	All India
	Seat	New Delhi

High Courts

No.	*Name*	*Year of establishment*	*Territorial jurisdiction*	*Seat of the Court*
1	Allahabad	1866	Uttar Pradesh	Allahabad (Bench at Lucknow)
2	Andhra Pradesh	1954	Andhra Pradesh	Hyderabad
3	Gauhati	1972	Assam, Manipur, Meghalaya, Nagaland, Tripura, Mizoram and Arunachal Pradesh	Gauhati (temporay Benches at Imphal & Agartala)
4	Bombay	1861	Maharashtra	Bombay (Bench at Nagpur)
5	Calcutta	1861	West Bengal and Andaman & Nicobar Islands	Calcutta
6	Delhi	1966	Union Territory of Delhi	Delhi
7	Gujarat	1960	Gujarat	Ahmedabad
8	Himachal Pradesh	1971	Himachal Pradesh	Simla
9	Jammu & Kashmir	1928	Jammu & Kashmir	Srinagar and Jammu
10	Karnataka	1884	Karnataka	Bangalore
11	Kerala	1956	Kerala & Lakshadweep	Ernakulam
12	Madhya Pradesh	1956	Madhya Pradesh	Jabalpur (Benches at Indore and Gwalior)
13	Madras	1861	Tamil Nadu & Pondicherry	Madras
14	Orissa	1948	Orissa	Cuttack
15	Patna	1916	Bihar	Patna (temporary Bench at Ranchi)
16	Punjab & Haryana	1947	Punjab, Haryana & Chandigarh	Chandigarh
17	Rajasthan	1949	Rajasthan	Jodhpur

CONSTITUTION AMENDMENTS

IT took three years for the Constituent Assembly to draft the Indian Constitution. During this period, all the Articles in the Constitution were discussed threadbare, word by word, before they were finally adopted. It was therefore expected that the Constitution would endure unchanged for a fairly long time. But in the very second year of the Costitution, it was deemed necessary to amend it. Then followed a spate of amendments.

The first amendment received Presidential assent in June 1951, 2nd in 1953, 3rd, 4th and 5th in 1955, 6th and 7th in 1956, 8th in 1959, 9th in 1960, 10th and 11th in 1961, 12th, 13th and 14th in 1962, 15th and 16th in 1963, 17th in 1964, 18th, 19th and 20th in 1966, 21st in 1967, 22nd in 1969, 23rd in 1970, 24th in 1971, 25th in 1972*, 26th and 27th in 1971, 28th, 29th, 30th, 31st and 32nd in 1973 and 33rd, 34th, 35th and 36th in 1974.

Thus in 24 years (1950 1974) 36 amendments were carried through. Thus works out at an average rate of 1½ amendments per year. This is not a healthy development.

Amending Powers

Part XX, Article 368 deals with amendments. This Article provides that, "the Constitution shall stand amended when the President gives assent to any bill for the purpose after it is passed in each House of Parliament by a majority of not less than two-thirds of the members of the House present and voting".

In certain matters, like the distribution of powers between the Centre and the States, or those relating to the Supreme Court and High Courts, the Bill of Amendment after having been passed by the Parliament with a two-thirds majority, must be ratified by not less than half of the State legislatures.

Limitation The amending powers of the Parliament were hedged in by the provision in Art. 13, Part III (Fundamental Rights) that "the State shall not make any law which takes away or abridges the rights conferred by this part and any law made in contravention of this clause, shall to the extent of contravention, be void."

This provision had been the *bete noir* of politicians, especially leftists, from the outset. It was made out, that the provision was retrograde and reactionary and stood in the way of the nation's progress.

The First Amendment

The first amendment (1951) represented a move to emasculate this provision. This amendment not only restricted the operation of Art. 13 but also made the judiciary *functus officio* in certain legislations, by adding a new schedule to the Constitution—the Ninth Schedule. The judiciary was barred from examining the validity of any legislation included in this schedule. The first amendment put in 13 select Acts in this schedule.

The first amendment, particularly the Ninth Schedule, was a warning and a portent. It immobilised the judiciary and provided a safe haven for all unconstitutional legislations. If the trend continued, it would mean the progressive elimination of the judiciary as an effective organ of the State. The trend not merely continued but went on with accelerated momentum. More and more laws sought refuge in the Ninth Schedule. The Supreme Court however ignored this future potentiality, when it declared the First Amendment valid, in what is known as *Sankari Prasad's case*.

The Seventeenth Amendment (1964) added 43 additional Acts to the Ninth Schedule, making a total of 64 Acts in all. When this amendment was challenged, in *Sajjan Singh's case* the Supreme Court confirmed its ealier ruling in Sankari Prasad's case and upheld the amendment. But in 1967, in what has since become known as *Golaknath case*, the Supreme Court reversed its earlier rulings and held by a majority of six to five that the Fundamental Rights granted by the Constitution had "a transcendental position and kept them beyond the reach of the Parliament". This meant that the Parliament cannot make any laws *in future* which takes away or abridges any Fundamental Right.

The Pros and Cons. To the politicians, the Golaknath decision, was like a red rag to the bull. They condemned it outright. They maintained that the

---

* 25th amendment recived Presidential assent only in 1972, because the Bill amending the Constitution had to be passed by not less than one---half of the State legislatures, before it became law. Consequently, later amendments now received Presidential assent earlier.

Parliament and State legislatures, were sovereign law-making bodies, in their respective spheres and that their powers in this regard could not be questioned by the Supreme Court. The British Parliamentary bias, imported into the Constitution, lent support to their arguments. On the other hand, it was contended that the Indian judiciary model led on the American pattern, was independent and was not expected to toe the line of the Parliament.

The Twenty-fourth Amendment Act, 1971

In February, 1970 the Supreme Court struck down the Bank Nationalisation Act and the Banking Companies (Acquisition and Transfer of undertakings) Act, 1969. In December 1970, the Presidential Ordinance de-recognising the Princes, was declared *ultra vires.* The fat was in the fire.

The Party in power, with a two-thirds majority in Parliament decided to make a frontal attack on the Supreme Court and brought forward the 24th amendment. It received Presidential assent on 5th Nov. 1971.

The 24th amendment made it clear that the Parliament "in exercise of its constituent power" may amend by way of addition, variation or repeal any part of the constitution including Fundamental Rights The Party in its zeal to fortify the Parliament's powers evidently lost its sense of proportion. It went on to humiliate the Head of the State as well. The amendment stipulates that the Bill (Amendment Bill) "shall be presented to the President who *shall* give his assent to the Bill and thereupon the Constitution shall stand amended".

The 24th, 25th and 26th amendments were challenged in the Supreme Court, as expected. The case* was heard by a Bench of 13 judges, presided over by Chief Justice S. M. Sikri. The other judges were, Justices Shelat, Hegde, Grover, Ray, Reddi, Palekar, Mathew, Dwivedi, Beg, Khanna, Mukerjee and Chandrachud. Judgement was delivered on April 24, 1973. The 13 judges handed down their decision in 11 separate judgements.

Justices Shelat and Grover and Hegde and Mukerjee, gave two joint judgements, and the others independent judgments.

The widely differing and on many points conflicting judgements may be summarised as under:—

1. Golaknath's Case is over ruled.
2. Article 361 does not enable Parliament to alter the basic structure or framework of the Constitution.
3. The Constitution (24th Amendment) Act, 1971, is valid.
4. Section 2 (A) and 2 (B) of the Constitution (25th Amendment) Act. 1971, is valid.
5. The first part of Section 3 of the Constitution (25th Amendment) Act, 1971, is valid. The second part, namely, "and no law containing a declaration that it is for giving effect to such policy shall be called in question in any court on the ground that it does not give effect to such policy" is invalid.
6. The Constitution (29th Amendment) Act, 1971, is valid

The Constitution Bench will determine the validity of the Constitution (26th Amendment) Act 1971 in accordance with law.

The signatories to the above -what was called 'view of the majority' - were Justice S. M, Sikri, J. M. Shelat, K. S. Hegde, A. N Grover, B Jaganmohan Reddy, D G Palekar, H. R. Khanna, A K. Mukherjee and Y. V Chandrachud.

Four of the 13 Justices A. N. Ray, K. K. Mathew, M. H. Beg and S. N. Dwivedi, were not signatories to the above.

However, all the 13 Judges signed the "order of the court" which merely stated:

"The Constitution Bench will determine the validity of the Constitution (26th Amendment) Act, 1971 in accordance with law".

"The cases are remitted to the Constitution Bench for disposal in accordance with law. There will be no order as to costs incurred up to this stage".

The judgments taken together, is obviously a compromise, a patchwork of opposing views one, that the amendments went too far and the other, that they were in order. The minority view led by Justice Ray (who was named Chief Justice, the next day, 25th April 1973, superseding three reputed senior judges) held that all the impugned amendments were valid *in toto* and that there were no implied or inherent limitation on the

---

* The judgments ran into 1,717 typed pages. The longest judgement was that of Justice Ray- 237 pages and the shortest that of Justice Beg- 47 pages.

Parliament's amending powers. However, the apprehensions of the Supreme Court in passing down these decisions were ably summarised by a minority Judge, Justice Chandrachud. "If despite the large powers now conceded to Parliament, the social objectives are going to be a dustbin of sentiment, then woe betide those in whom the country has placed such massive faith."

AMENDMENTS

1. **Constitution (First Amendment) Act, 1951.** The first amendment was made by the Constitution (First Amendment) Act, 1951. Besides making minor changes in Articles 15, 19, 85, 87, 174, 176, 341, 342, 372 and 375 this Act added two new Articles, 31-A and 31 B and a 9th Schedule.

By an amendment to clause (2) of Article 19, it has permitted reasonable restrictions to be imposed by law on the exercise of the right of freedom of speech and expression in the interest of friendly relations with foreign States or public order on the ground of incitement of an offence. An amendment of clause (6) of Article 19 has, however removed from the scope of judicial review, on grounds of reasonableness, restrictions imposed on the right of citizens to carry on any trade, business, industry or service where such restrictions have been imposed with a view to enabling the State to undertake any scheme of nationalisation

To Article 15, sub clause (4) was added stating that the State can make special provision for the advancement of any socially and educationally backward class of citizens or for the Scheduled Castes and the Scheduled Tribes.

Two new Articles 31 A and 31 B were inserted. Article 31-A provides that no law providing for the acquisition by the State of any estate or of any rights therein or for the extinguishment or modification of any such rights shall be deemed to be void on the ground that it is inconsistent with, or takes away or abridges any of the rights conferred by any provisions of this Part (III).

Article 31-B provides that none of the Acts and Regulations specified in the Ninth Schedule nor any of the provisions thereof shall be deemed to be void, or even to hav become void on the ground that such Act, Regulation or provision is inconsistent with, or takes away or abridges any of the rights conferred by any provisions of Part III and notwithstanding any judgement, decree or order of any court or tribunal to the contrary, each of the said Acts and Regulations shall continue in force.

2. **Constitution (Second Amendment) Act, 1952** amended Article 81 with a view to readjusting the scale of representation in the House of the People, necessitated by the completion of the 1951 census.

3. **Constitution (Third Amendment) Act, 1954,** substituted entry 33 of the Concurrent List in the 7th Schedule by a new one including, foodstuffs, cattle fodder, raw cotton and jute as additional items whose production and supply can be controlled by the Centre if expedient in the public interest

4. **Constitution (Fourth Amendment) Act, 1955,** amended Article 31, 31 A and 305 and added a few more entries to the 9th Schedule. The amendment to Art. 31 (2) provides that when the State compulsorily acquires private property for a public purpose, the scale of compensation prescribed by the authorising legislation could not be called in question in a court. The Article 31-A was amended so as to exclude the temporary taking over of a property by the State, either in public interest or to secure its better management, from the compensation clause. The amendment to Art. 305 was in the nature of a saving clause for laws providing State monopolies Seven new entries were also added to the 9th Schedule.

5. **Constitution (Fifth Amendment) Act, 1955,** substituted the provision to Art, 3 by a new one, empowering the President to fix a time limit by State Legislature to express their views on proposed Central laws affecting the area and boundaries etc. of their respective States

6. **Constitution (Sixth Amendment) Act, 1956,** added a new entry 92 A to the Union List of the Seventh Schedule relating to taxes on the sale and purchase of goods in the course of Inter-State transactions and the relevant clauses under Articles 269 and 286 on the same subject

7. **Constitution (Seventh Amendment) Act, 1956.** This Act came into force on 1st Nov. 1956. It was passed for the reorganization of the States. It involved not only the establishment of new States and alterations in State boundaries but also the abolition of the three categories of the States and the classification of certain

areas as Union Territories. This led to the amendment of Article 1 and the First Schedule of the Constitution. Among the other important Articles which were affected by this amendment were Articles 81 and 82 which were substituted by new ones; Article 131 on the original jurisdiction of the Supreme Court, Article 168 providing for bicameral legislature in certain States and Articles 216, 217, 220 and 224 dealing with the High Courts. Two new Articles 350-A and 350-B were added with a view to implementing the reccommendations of the States Reorganisation Commission regarding constitutional safeguards for linguistic minorities.

8. Constitution (Eighth Amendment) Act, 1959, amended Article 334 so as to extend the special provision relating to reservation of seats for the Scheduled Castes and Scheduled Tribes and representation of Anglo-Indians by nomination in the House of the People and Legislative Assemblies of States, for a further period of ten years from Jan. 26, 1960

9. Constitution (Ninth Amendment) Act, 1960, amended the First Schedule to the Constitution in order to give effect to the transfer of certain territories to Pakistan in pursuance of the agreements entered into between the Governments of India and Pakistan in Sept. 1958.

10. Constitution (Tenth amendment) Act, 1961. This amendment incorporates former Portugese enclaves of Dadra and Nagar Haveli within India and provides for their administration under the rule-making powers of the President (Art. 240).

11. Constitution (Eleventh Amendment) Act, 1961, obivates the necessity of a joint meeting of the two Houses of Parliament (Art. 66) by forming them into an electoral college for the election of Vice-President. It also amends Art. 71 so as to make it clear that the election of the President or the Vice-President shall not be challenged on the ground of any vacancy, for whatever reason in the appropriate electoral college.

12. Constitution (Twelfth Amendment) Act, 1962. The twelfth amendment was passed in March, 1962. As from Dec. 30, 1961, the Territories of Goa, Daman and Diu became part of the territory of India. From that date also, they are being administered as Union Territory in accordance with Article 240 of the Constitution. The amendment was passed to specifically include these Territories as a Union Territory in the First Schedule to the Constitution and to amend Art. 240 (1) so as to empower the President to make regulations for the peace, progress and good government of these areas.

13. Constitution (Thirteenth Amendment) Act, 1962, created Nagaland as the sixteenth State in the Indian Union.

14. Constitution (Fourteenth Amendment) Act, 1962, confers necessary legislative powers on Parliament to enact laws for the creation of Legislature and Council of Ministers in all Union Territories (H Pradesh, Manipur, Tripura, Goa, Daman and Diu and Pondicherry) except Delhi. Former French establishments of Pondicherry, Karikal, Mahe and Yanam which became territories of the Indian Union with the ratification of the Treaty of Cession by the governments of India and France on Aug. 16, 1962 is specified in the Constitution as the Union Territory of Pondicherry.

15. Constitution (Fifteenth Amendment) Act, 1963, is a minor amendment, empowering the President of India, in consultation with the Chief Justice of India to make final decisions on dispute about a High Court judge's age. It also shortens the procedure for disciplinary action against State employees

16. Constitution (Sixteenth Amendment) Act, 1963, amends clauses 2 and 4 of Article 19 of the Constitution on Fundamental Rights. It empowers the States to enact any legislation, imposing reasonable restrictions on the exercise of Fundamental Rights by citizens, so as to protect the sovereignty and the integrity of India

It also amends Articles 84 and 173 and the forms of oath, provided in the Third Schedule obliging candidates for election to the State and Union legislature, members of Parliament and State Assemblies, judges of the Supreme Court and the High Courts and the Comptroller and Auditor General of India, to take oath to uphold the sovereignty and integrity of India

17. Constitution (Seventeenth Amendment) Act, 1964, amends Articles 31 of the Constitution and provides that if the State acquires land under the personal cultivation of the owner and within the ceiling limit, compensation has to be paid at the market value of the property so acquired. The amendment also extends the protection of the 9th Schedule to 64 State land enactments so that their validity is not disputed in a court of law.

18. Constitution (Eighteenth Amendment) Act, 1966, provides for the linguistic reorganisation of Punjab into a Punjabi speaking State called Punjab and a Hindi speaking State called Haryana.

19. Constitution (Nineteenth (Amendment) Act, 1966, provides that Article 324 clause I shall be amended by deleting the words "including the appoint ment of election tribunals for the decision of doubts and disputes arising out of or in connection with elections to Parliament and to the Legislatures of States shall be vested in a Commission."

20. Constitution (Twentieth Amendment) Act, 1966 introduced Article 233-A in the Constitution, validating the appointment, posting or promotion of a person as a District Judge, if such appointment was illegal or void by reason of its not being in accordance with Article 233 or 235 (dealing with control over subordinate courts by High Court etc.)

21. Constitution (Twenty-first Amendment) Act, 1969, provides for the recognition of Sindhi as one of the national languages of India by including it in the Eighth Schedule to the Constitution.

22. Constitution (Twenty- second Amendment) Act, 1969, created an autonomous hill state "Meghalaya" within the state of Assam.

23. Constitution (Twenty-third Amendment) Act, 1969, provides for the extension of the reservation of seats for Scheduled Castes and Tribes and the nomination of members of the Anglo Indian community for another 10 years.

24. Constitution (Twenty-fourth Amendment) Act, 1971, affirms the Parliament's power to amend any part of the Constitution, including Fundamental Rights by amending Articles 368 and 13 of the Constitution. This neutralises the decision in Golaknath case.

A peculiar feature of the Amendment is that the President is bound to give his assent to amending Acts, when they are presented to him, thus making Presidential assent an automatic act.

25. Constitution (Twenty-fifth Amendment) Act, 1971, bars the jurisdiction of courts over acquisition laws in regard to the adequacy of the amount paid in lieu of take over. The word, "compensation" in the case of take over is deleted and the word "amount" is substituted.

A new clause provides that if any law is passed to give effect, to the Directive Principles contained in clauses B and C of Article 39 and contains a declaration to that effect, it shall not be questioned on the ground that it takes away or abridges Fundamental Rights or on the ground that it does not give effect to the principles contained in the declaration.

The Twenty fifth Amendment Act having been passed by Parliament was sent to the State legislatures for ratification. 19 State legislatures ratified the Act. It received Presidential assent on April 20, 1972.

26. Constitution (Twenty-sixth Amendment) Act, 1971. This Act withdraws the recognition given to former rulers of Princely States and abolishes the privy purses granted to them. It deleted Articles 291 and 362 of the Constitution and inserted a new Article 363-A. In Article 366, a new clause was inserted in the place of clause 22.

27. Constitution (Twenty-Seventh Amendment) Act, 1974. Under this Act, two Union Territories, **Mizoram and Arunachal Pradesh** were set up.

28. Constitution(Twenty-eighth Amendment) Act, 1972. The 28th Amendment Act, was originally introduced in 1971 as the 31st Amendment Bill. It was renumbered 28th Amendment Bill, since certain other Amendment Bills introduced earlier had not been passed. The Amendment deletes Article 314 of the Constitution, which gives protection to the ICS officers' conditions of service and privileges and inserted a new Article 312-A. The Parliament passed the Act.

29 Constitution (Twenty-ninth Amendment) Act, 1972. This Amendment included the Kerala Land Reform (Amendment) Act, 1969 and the Kerala Land Reforms (Amendment) Act, 1971, in the Ninth Schedule to the Constitution to protect these Acts from judicial review under Article 31-B and remove any uncertainty or doubt there could have arisen in regard to the validity of these Acts. The Act received Presidential assent on June 9, 1972.

30. Constitution (Thirtieth Amendment Act,) 1972. This Act curtails the number of appeals to the Supreme Court. The Bill received Presidential assent on Feb. 23, 1973 Formerly appeals to the Supreme Court were decided on the basis of the valuation of the subject matter. The Amendment makes only such cases which involve a substantial question of law, appealable to the Supreme Court.

Constitution (Thirty first Amendment) Act. 1973 was passed by Lok Sabba on May 8, 1973. The Act. amends Art· 81 of the Constitution so as to increase the upper limit of elective seats in the Lok Sabha from the existing 525 to 545*

Constitution (Thirty-second Amendment) Act, 1973. The Act, amends Arts 75 (relating to Central Ministers) 101, 103 (Members of Parliament) 164 (State Ministers) and 190 (Members of the State Legislature), so as to disqualify a defector to continue as a member of any Legislature or Ministry as the case may be.

Constitution (Thirty - third Amendment) Act, 1974 passed by the Parliament in May 1974 implements the 6 point programme for Andhra Pradesh (Also see Andhra Pradesh- infra).

Constitution (Thirty fourth Amendment) Act, 1974 provides constitutional protection to 20 Acts passed by the various States, as land reforms, by including them in the 9th Schedule to the Constitution (See First Amendment-supra) The total number of Acts, now included in the 9th Schedule is 86

Constitution (Thirty-fifth Amendment) Act, 1974 invalidates the acceptance of resignation by members of the State Legislatures and Parliament, which were made under durers or Coercion or any other kind of involuntary resignations.

Constitution (Thirty-sixth Amendment) Bill passed by the Parliament in September, 1974 provides for Associate State status to Sikkim. The Bill introduces

1 a new Sub-article 2 A. which explains the nature of Sikkim's associate status 2 A Tenth Schedule to define the territories of Sikkim and spell out the terms and conditions of Sikkim's association with the Indian Union and 3 amends Arts 32, 80, 81, 101 and 102 to make provision for Sikkim's representation in the Indian Parliament. The 36th Amendment Bill has been sent to the States for ratification

---

The guiding principle for the allocation of seats in the Lok Sabha to the States is contained in Article 81 (2) (A) which says "there shall be allotted to each State a number of seats in the House of the People in such manner that the ratio between the number and the population of each state is so far as practicable, the same for all States"

POLITICAL PARTIES

THE party system had not taken roots in India, when the first General Election took place in 1952 Nevertheless the General Election was fought out on a party basis, although a number of independents had also entered the fray.

Pre independence Parties

When India became free, there were only two political parties of a national character—the mammoth *Indian National Congress* and the diminutive *Communist Party of India*. The *Dravida Kazhakam,* under E. V. Ramaswamy Naicker was emerging as a powerful force in the south, while the *Hindu Mahasabha* under Veera Savarkar with its para-military wing the *Rashtriya Swaya Seva Sangh* was becoming powerful in the north. But these parties could not make much headway in national politics, as they were professedly communal. The Dravida Kazhakam stood for the non-Brahmin Hindu majority in the south and was therefore openly anti-Brahmin The Hindu Mahasabha, on the other hand, was violently pro-Hindu, (including Brahmins non-Brahmins and the depressed classes) and considered non Hindus, mainly Muslims and christians, second class citizens in a Hindu State.

New Parties

Among the new Parties that came into being after independence, *Rama Rajya Parishad* was probably the earliest. Founded in 1948, it represented orthodox Hinduism. It stood for the establishment of Rama Rajya or the return to the glorious days of Sri Rama's reign, narrated in the Ramayana. Another party, the *Dravida Munnetra Kazhakam* was formed in 1949 This was a breakaway party from Dravida Kazhakam. *The Scheduled Castes Federation* founded by. Dr. Ambedkar, represented the depressed classes and functioned as a separate party. Around 1950, Jaya Prakash Narayan founded the *Indian Socialist Party* and soon afterwards, Acharya Kripalani formed the *Kisan Mazdoor Praja Party*. *The Bharatiya Jana Sangh* was officially formed in 1951 with Shyama Prasad Mukerjee as its first President. The *Akali Dal* originally a Sikh religious organisation. converted itself into a political party in the fifties

Among the 77 parties that contested the first elections, only 51 contested the national elections to the Lok Sabha The others contested state elections, Independents contested both the national and state elections. The first Lok Sabha, that emerged after the elections was composed as follows: Congress Party (364) Communist Party (26), Socialist Party (12), Kisan Mazdoor Praja Party (7), Ganatantra Parishad (5) Hindu Mahasabha, Akali Dal, and Tamil Nadu Toilers' Party(4 each) Jana Sangh, Rama Rajya Parishad, Jharkhand party, Revolutionary Socialist Party and Commonwealth Party (3 each). The Scheduled Castes Federation, Lok Sevak Sangh and Peasents and Worker's Party (2 each) Muslim League, Forward Bloc, Janata Party. Krishikar Lok Party and Travancore Tamil Nadu Congress (1 each) The Independents numbered 35.

Splits and Mergers

In 1952, the ISP and the KMPP amalgamated to form the Praja Socialist Party (PSP), This is the first party merger in India. Meanwhile new regional Parties started to appear. In 1959, a brand new national party the Swatantra came on the scene.

In 1964, the Scheduled Castes Federation reconstituted itself as the *Republican Party of India* (RPI), The same year, the Socialist Party (SP) merged with the Praja Socialist Party (PSP) and became the *Samyuktha Socialist Party* (SSP) Hardly six months afterwards, in 1965, the merger was dissolved by many prominent leaders of the old PSP backing out. The defunct PSP was revived and re-organised. The SSP continued as a separate party. The Communist Party of India (CPI) also broke up in 1964 into right and left factions, The right faction, retained the name and goodwill of the CPI. The left faction formed itself into a new party—*Communist Party (Marxist)*(CPM).

Since 1967, dramatic changes have occurred in the party set-up in India. The Communist Party (already split into two factions) has seen further divisions. A group of extremists, generally called *Naxalites*, because of their terrorist activities in Naxalbari, Bengal, have formed a third Communist Party - the *Marxist-Leninist Party* The Marxist-Leninists have spawned a fourth faction—*Marxist-Leninist-Maoist Party*,

But the most dramatic and by far the most far-reaching turn in party politics came with the split of the National Congress. The monolithic Congress had shown signs of cracking in the States, since 1964. The *Kerala Congress* and *Bangla Congress* are the by-products of such cracks: But in 1969 the National Congress split right through the centre into the *Ruling Congress* led by the Prime Minister Indira Gandhi and the *Opposition Congress* under the old Congress President, Nijalingappa. In the 1971 elections. the Ruling Congress beat the Opposition Congress hollow, leaving them a miserable 16 seats in the Lok Sabha as against 350 won by the Ruling Congress.

The Socialist camp has also seen radical changes. The SSP and PSP which parted company in 1965 have at last come together again in 1971 and have formed the *Socialist Party of India* (SPI). The new Socialist Party could not hold together for long. Raj Narain, a veteran leader of the Socialist Party broke away from the party in May 1972. He and his followers have resusciated the SSP at Lucknow on Dec. 31, 1972, with B. N. Mandal as Chairman. The Socialist Party was reorganised on June 5, 1973 at Bombay with George Fernandez as Chairman.

Meanwhile the DMK in Tamil Nadu split. M. G. Ramachandran formed a new party, the *Anna DMK* in 1972. Balraj Madhok, expelled from the Jana Sangh formed the *Rashtriya Loktantric Sangh* in 1973. In 1974, the proliferation of parties-mainly splinter parties--continued.

The most important developments in party politics in 1974 was the formation of the Bharatiya Lok Dal (BLD) or the *Peoples' Party of India* in August 1974 at Delhi. The new party was formed by the merger of seven existing parties, namely, *Bharatiya Kranti Dal* (BKD), *Swatantra*, *Samyukta Socialist Party*, *Utkal Congress*, *Kisan Mazdoor Party*, *Rashtriya Lok Tantric Dal* and *Punjab Khetibar Zamindar Sabha*.

The new party has adopted the flag and symbol of the erstwhile, *Bharat Kranti Dal*. Charan Singh, Chairman of the old Bharat Kranti Dal, was elected chairman of the new party.

Evolution of the Party System

The Party System in India, has during the last quarter century, developed on lines quite dissimilar, to those which obtained in Western democracies. The main trends noticeable in India are (1) absence of polarisation or the lack of a powerful opposition (2) a cleavage of parties on national and state bases and (3) endless proliferation.

(1) Polarisation

The main reason, why a polarisation of parties never took place in India was that the Indian National Congress under Pandit Nehru, had completely dominated the national scene. The congress under Nehru, has often been likened to the sprawing banyan tree, under whose wide spreading branches, no other vegetation can thrive. Secondly, no other political party could produce a leader, who came anywhere near Pandit Nehru, in intellect, character and reputation In any case, the maximum strength that the biggest of the opposition could muster in the Lok Sabha, never went above 30 (till 1970) as against the massive strength of the congress party, which hovered around 300.

In fact, Nehru himself had never thought that an opposition was necessary, not even as a formal symbol of the party system. Till 1970, the opposition leader was not even formally recognised. The first opposition leader to be recognised as such, was Dr. Ram Subhag Singh, who was the leader of the Opposition Congress when the congress split in 1970.

(2) National and State Parties

Instead of polarising at the national level into ruling and opposition parties, another sort of polarisation took place at national and state levels. Political parties soon came to be classified as national and state parties. The national parties function on an all India basis. They are integrative in character and ideologically committed to some form of political philosophy. The state parties have no special ideology. They are usually centered round local leaders and are mainly interested in local questions Many of these parties are communal in character.

The fortunes of national parties depend very much upon the degree of power, that state parties wield in their respective states A really powerful state party like the DMK can, sometimes, sweep the national parties out of the state But since, national parties are better organised and have much greater financial resources, the chances of any state party getting the better of a national party, ultimately, are however rather remote.

(3) Endless Proliferation

No one has yet been able to explain, why political parties tend to multiply in India at such prodigious rates. During the 25 years, that have elapsed, the country, has seen a proliferation of political parties, such as no other country in the world has witnessed. A rough tally yields, a hundred political parties of all hues, that have come into existence since independence

Of the 100 and odd parties scattered through out the length and breadth of India, hardly a score deserves notice. The rest is made up of people, who cluster round displaced local leaders or hang on to sheer parochialisms, in the hope that their turn will come some day. Many of them come to life during election time and go into hibernation till the next election. But to the dismay of the voter they never disappear altogether. They exist only to swell the number of candidates, cloud the issues and spread confusion all round.

Major Parties

(1) **The Indian National Congress** is the oldest and biggest political party in India. It was founded in 1885 by a retired British Civilian, Allan Octavian Hume Its first meeting was held in Bombay, under the presidency of W. C. Banerjee

At first, the National Congress contented itself with criticising the British Government and demanding reforms. But as Hume remarked, "the National Congress had endeavoured to instruct the government, but the government had refused to be instructed".

Then followed a period of constitutional agitation, pious resolutions and firey speeches. Under Mahatma Gandhi the National Congress became a militant and powerful organisation. Gandhiji's civil disobedience movement, non violent agitation, Satyagrahas and fasts proved a deadly armoury of weapons, to which British power finally yielded.

With independence, the Indian National Congress became the sole political party in India and the arbiter of the nation's destinies. The National Congress under Pandit Nehru, ruled independent India for sixteen years.

The National Congress split into two factions in 1969, one faction led by the Prime Minister Indira Gandhi and the other by the old congress President Nijalingappa. The Indira group, came to be distinguished as the Indian National Congress (ruling) and the Nijalingappa group as the Indian National Congress (opposition).

In 1971, the Indira Congress dropped the epithet 'Ruling' and took the old name, the Indian National Congress.

Programme. The Indian National Congres party has a radical programme based on social justice. It is against concentration of economic power in the hands of a few and for the abolition of special privileges, like the privileges and privy purses of the Indian princes. It is for amending the Constitution, wherever it obstructs the implementation of the Directive Principles of State policy. It advocates the supremacy of Parliament, ceilings on urban property, agrarian reforms, nationalisation of general insurance, diffusion of proprietary interest in the big newspapers and similar other policies of a socialistic nature

President: Dev Kanta Barooah (from Oct. 19, 1974).

(2) **Indian National Congress (Opposition)** was formed as a separate party in November 1969, following upon the split in the Congress Party. In December 1969, it functioned as the official opposition party in parliament. It went to the polls under its own banner.

After the 1971 elections, the opposition faction, has dropped the epithet 'Opposition' and has chosen the appellation 'Organisation'. Thus the old Nijalingappa faction is now known as The *Indian National Congress (Organisation)* or simply the Organisation Congress

Programme The party stands for the guarantee of fundamental rights contained in the Constitution and for the independence of the judiciary. It is standing for a mixed economy and against State Capitalism. It opposes deficit financing, advocates Panchayati Raj and the upliftment of the Scheduled Castes and Tribes

President: Asok Mehta

(3) **Swatantra Party.** This party was established in August 1959, by the veteran elder statesman C Rajagopalachari. It has been branded as a reactionary party, but actually, it is a moderate party

Programme. "The party is pledged to protect our democratic Constitution and to resist attempts to destroy it or to impair the independence of the judiciary which is the custodian of the constitution and of the rights and liberties of the citizen" (M. R. Masani) It stands for private initiative and enterprise side by side with public enterprises and is opposed to excessive controls and bureaucratic red tapism. The party advocates modern socialism of the type contained in the Godesburg Programme of the German Social Democratic Party They have no faith in the out dated socialism of the 19th century, championed by the socialist parties of India. *President:* Piloo Mody.

(4) **Bhratiya Jan Sangh.** The party was founded in 1951 by Dr. Shyma Prasad Mukerjee. It was built up as a rival party to the National Congress.

Programme. The party believes in a programme of economic development "free from the shackles of dogma". It stands for full employment, compulsory education and a massive programme of rural public works and housing. It is not opposed to amendment of the Constitution but it feels that "the essential fabric of the Constitution is sound and should not be tampered with levity" (Vajpai) *President:* L. K. Advani.

(5) **The Communist Party of India** is one of the oldest Indian parties. It appears to have been founded at Tashkent, Russia, in 1920 by some Indian revolutionaries led by the late M. N. Roy.

Having been born in "Russia, it is only natural that the party has turned to Soviet Russia, for guidance and support. And Soviet Russia has been munificent in both Thus tied to the apron strings of Russia, the CPI follows Soviet lead in all matters of policy and discipline.

Programme. The party has an avowedly communist programme. But in the conditions prevailing in India to-day, the Party has reframed its policy to accommodate popular democratic ideas, like individual liberty, freedom of speech, the freedom of Press and freedom of association. The party is now an ally of the "Ruling Congress Party. *Chairman:* S A. Dange.

(6) **Communist Party (Marxist)** The Marxist Communist Party is a break away party from the parent body-the Communist Party of India. It was formally established as a separate party only in 1964 The party consists of the more militant members of the old Communist Party This party now looks upon Communist China as its mentor

Programme. It is a frankly revolutioanry party, although it is willing to join with democratic parties in elections, so as to get into power constitutionally. It had thus established a United Front government in West Bengal. The party at present has a strong base only in West Bengal and Kerala. *Chairman:* P. Sundarayya

(7) **Samayukta Socialist Party,** Originally formed by the merger of the Socialist Party and Praja Socialist Party, in 1964, was resuscitated in 1973 by Raj Narayan and his group. *Chairman:* B. N. Mandal.

(8) **Socialist Party of India,** can trace its lineage to the Socialist Party founded by Jaya Prakash Narayan in 1950. It is now reconstituted with George Fernandez as *Chairman.*

(9) **Republican Party**

The Republican Party was formed out of the All India Scheduled Castes

Federation which represented the depressed and backward communities in India. The Federation had functioned as a political party for some time, and contested the 1952 elections. Its name was changed to the **Republican Party** in 1957 to give it a national look.

In 1969, the Republican Party split into two. B.D Khobargade and his followers, moved away from the parent party, then headed by the late Dada Sahib Gaikwad. In April, 1974 the two groups had talked out their differences and formed a 15 member Presidium. On October 26, 1974 a party convention at Nagpur dissolved the Presidium unanimously elected B D Khobargade as President, Mrs Ishwari bai as Vice President and D A. Khattia, as the general secretary.

But the party split again immediately after the convention --one faction headed by B.D. Khobargade and D.A Kattia and the other faction headed by C. Arumugam and R S Gawai (Deputy Chairman of the Maharashtra, State Council

(10) Revolutionary Socialist Party (RSP)

The Revolutionary Socialist Party of India, is pledged like the Marxists, to establish a socialist State in India, through revolution. It differs from the Communist parties, in that it does not look for help or guidance or counsel either to Soviet Russia or Communist China. Although it aspires to be an all India party, its influence is limited to two States, Bengal and Kerala.

(11) Dravida Munnetra Kazhagam was formed by C N. Annadurai in 1949, as a break away party from the Dravida Kazhagam founded by E. V Ramaswamy Naicker. It very soon overshadowed the Dravida Kazhagam and succeeded in capturing power in Tamil Nadu. Chairman, M. Karunanidhi.

(12) Shiromani Akali Dal. The Akali Dal started as a religious organisation of the Sikhs for management of gurudwaras or Sikh temples. Under Master Tara Singh the Dal developed political overtones. Its main demands were the creation of a separate Punjabi State, in which the Sikhs will have a majority and the recognition of Punjabi language in Gurmukhi script as the official language. With the creation of the Punjab State, the main demand of the Akali Dal has been met. It now survives as the leading political party in the Punjab.

(13) The Hindu Maha Sabha. This is a frankly communal organisation founded by the veteran patriot Veera Savarkar The present chief of the Sabha is Madhukar Dattetreya.

(14) Indian Union Muslim League. This is another communal organisation confined to the Muslims It has some influence in kerala and some other States. President, Ibrahim Sulaiman Satt

(15) Shiv Sena. The Shiv Sena, founded by Bal Thackeray is active in and around the city of Bombay. It claims that Maharashtrians, the sons of the soil should get first preference in jobs and other matters in Maharashtra, particularly in the big business houses and factories in the city. Its intolerance of non-Marathas is disgusting. It freely indulges in violence to achieve its parochial goals. A paramilitary organisation rather than a political party, it remains a perpetual menace to non-Marathas residents in Bombay. It is unequivocally opposed to Muslim communalism and international communism. President: Bal Thackeray

16. Bharatiya Lok Dal, was formed in 1974 merging seven other existing parties (see supra)

The BLD "believes in an egalitarian society with narrow income differerentials a system, where subject to exceptions, the citizens will be free in the choice and ordering of their economic life".

17. Recognition of Political Parties

The Election Commission has the right to recognise political parties, for purposes of election. The list of recognised parties is revised after every general election in the light of the votes polled by them. The general criterion for recognition, is that a party should secure at least four per cent of the total votes cast in a state.

If any such political party is treated as a recognised political party in four or more States, it enjoys the status of a 'National Party' throughout the whole of India. If recognised in less than four States, a party enjoys the status of a 'State Party' in the State or States in which it is a recognised political party.

If a party is recognised, an election symbol is allotted to it Certain symbols are 'reserved' and others 'free'. The reserved symbols are given to candidates sponsored by the recognised parties. The free symbols are available for others.

On the basis of the 1971 Lok Sabha elections and the elections to State Assemblies in 1969, 1970, 1971 and 1972, the Election Commission has declared seven Parties as National parties and 17 Parties as State parties.

National Parties

Indian National Congress All States (except Nagaland) and Union Territories (except Arunachal Pradesh).

Indian National Congress (Organisation). Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Manipur, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal, Dadra and Nagar Haveli, Delhi and Pondicherry.

Bharatiya Jan Sangh. Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, U P, Chandigarh, and Delhi.

Communist Party of India. Andhra Pradesh, Assam, Bihar, Kerala, Manipur, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal, Delhi and Pondicherry.

Swatantra Party. Andhra Pradesh, Gujarat, Orissa, Rajasthan, and Tamil Nadu.

Socialist Party. Assam, Bihar, Madhya Pradesh, Maharashtra, and Manipur.

Communist Party of India (Marxist). Kerala, Tripura, W. Bengal, and Dadra and Nagar Haveli.

State Parties

Vishal Haryana Party (Haryana), Akhil Bharatiya Arya Sabha (Haryana), Kerala Congress (Kerala), Muslim League (Kerala), Revolutionary Socialist Party (Kerala), Peasants' and Workers' Party (Maharashtra), Manipur People's Party (Manipur), All Party Hill Leaders Conference (Meghalaya), United Democratic Front (Nagaland), (Previously known as United Front of Nagaland), Nagaland Nationalist Organisation (Nagaland), Jana Congress (Orissa), Shiromani Akali Dal (Punjab), Dravida Munnetra Kazhakam (Tamil Nadu and Pondicherry), Bharatiya Kranti Dal (Uttar Pradesh), Maharatrawadi Gomantak Party (Goa, Daman and Diu), United Goans (Sequeria group) (Goa, Daman and Diu)

State Parties that have lost their earlier recognitions are: 1. Republican Party of India (Maharashtra) 2 Janata Paksha (Karnataka) 3 Shiromani Akali Dal (Gurnam Singh group) (Punjab) 4. Forward Block (West Bengal) 5 Jammu and Kashmir National Congress (Jammu and Kashmir), 6. Tripura Congress (Tripura) 7 People's Front (Pondicherry).

ELECTIONS

The Electoral System

Elections in India, are regulated by the Representation of Peoples Act. The provisions of this Act and the working of the electoral system, generally, have been under fire from opposition parties, for some time now.

L. K. Advani, the President of Jana Sangh, recently spelt out the main defects of the electoral system, in a speech, at Cochin*. According to him, the Indian electoral system was defective on two counts. The first was that candidates or parties for that matter, who collected only a minor percentage of the total votes, managed to win the elections The second was that money had become, the dominating factor in elections.

(1) Public opinion and Legislative Majority

It is rather strange, that a party which gets less than fifty per cent of the total votes, should get more than 60 per cent majority in the legislature. Yet, this is what has consistantly happened in India. Thus while the Congress party secured only 44.99 per cent of the total votes in 1952, it came out with a 74.5 per cent majority in the Lok Sabha. This experience was repeated in the 1957 elections and again in 1962 and 1967. In 1971, under the inspired leadership of Indira Gandhi, the congress came out with a steam-roller majority of 350 elective seats out of 518 in the Lok Sabha. Even then the ratio of total votes polled to the total seats secured, showed no radical change

A system of this type, does not reflect the opinion of the people, that is, if the percentage of total votes, is any guide. On the other hand, the system distorts the entire picture, by elevating a minority public opinion as a massive public mandate for the party.

Money Power

Justice V R. Krishna Iyer of the Supreme Court observed "Money Power casts a sinister shadow on our elections." It affects elections in many ways. The cost of election propaganda for a state Assembly seat is forbidding enough, for a canaidate with average means. A parliamentary constituency, made up of several state Assembly constituencies

---

Speech delivered at Cochin on Oct. 13, 1974 reported in The Hindu.

calls for much greater financial commitment, which only a millionaire can tackle. And yet, candidates, who find it difficult to make both ends meet, are put up for parliamentary seats. Naturally, the burden of producing the finances for election, falls upon the parties concerned.

Where do the political parties get election funds and how? The Congress Party claimed that they get their funds from the members of the party and its supporters But a collection, made in this manner, would never meet the expenses of an election compaign. Actually, election funds are collected from big business men and houses, as the price of favours shown or to be shown in the future by the government. Obviously, the ruling party alone had this advantage. This was resented by the opposition parties, who insisted that companies should be prohibited from making donations to political parties.

The ruling Congress party, fell in with this demand and amended the Indian Companies Act. The amendment declared that "as from May 28, 1969, corporate Companies are prohibited from making contribution or giving donations to political parties". Thus, big money ceased to have anything to do with the elections at least openly.

Big money out, Black money in

But election costs were mounting and political parties had to put up their candidates and get them elected. If big money cannot come through the front door, black money can, through the back door. And black money did.

After all, what Rajaji called the License Permit-Quota-Raj was still in power. And big money depended upon this Raj for their survival. So the big business houses paid for the elections, but without accounting.

The Spanner in the Works

The Representation of Peoples Act permits election expenses but stipulates a maximum. It also requires a winning candidate to file returns of his election expenses showing that they are within the stipulated limit.

The election expenses, always exceeded the prescribed maximum but the excess was rarely shown in the returns. The legislators salved their conscience, by the argument that the returns are to show the expenses actually *incurred by the candidate*, but not the expenses iucurred for the candidate, by his party or well-wishers. The expenses actually incurred by the candidate, being nominal, they came well below the prescribed limit.

The legality of this distinction came up before the supreme court, in an election petition, which sought to unseat an M.P-A. N Chawla on the ground of corrupt practices during election. The court ruled, that under section 77 of the Representation of Peoples Act, the 'authorising' of expenses by a candidate, in excess of the prescribed limit, would be 'a corrupt practice'. Such an authorisation, express or implied, will arise, when the expenditure in connection with an election was incurred not by the candidate himself, but by his political party or well-wishers. In the result, A. N. Chawla was unseated.

When the Supreme Court passed down this judgement, 180 other election petitions were pending in several courts, including those of Mrs. Indira Gandhi, the Prime Minister and P, C. Sethi, Chief Minister of Madhya Pradesh. Almost all these petitions alleged that the winning candidate had exceeded, the ceiling on election expenses laid down by the law, in addition to having resorted to other corrupt practices.

In view of the potentialities of mischief, inherent in the Supreme Court judgement, the President, promulgated an ordinance, on Oct. 19, 1974, amending section 77 (1) by appending an explanation as follows: "Notwithstanding any judgement, order or decision of any court to the contrary, any expenditure incurred or authorised in connection with the election of a candidate by a political party or by any other association or body of persons or by any individual (other than the candidate or his election agent) shall not be deemed to be, and shall not even be deemed to have been, expenditure in connection with the election incurred or authorised by the candidate or by his election agent for the purpose of this subsection". The ordinance will not affect judgements, already given.

GENERAL ELECTIONS

The General Elections to the national Parliament and State Assemblies were held simultaneously till 1970. This was advantageous to the parties. Besides, the poll expenses of the government, were also cut down to the minimum. In 1971 this policy was given up. The national and state elections were 'de-linked'-and held separately. Although no explanation has been offered for this departure in policy, it was probably the clash of interests between national parties and some state parties, that prompted this change.

LOK SABHA ELECTIONS

First General Election 1952. The first general election was held in 1952. Fifty-one parties contested the Lok Sabha elections, out of which 21 entered the First Parliament The Congress Party with a 74.5 majority in the Lok Sabha secured only 44.99 per cent of the total valid votes.

Second General Election 1957. At the second general elections, the Congress secured 371 out of 494 elective seats in the Lok Sabha. The Congress Party maintained its majority in the Lok Sabha of 74.5 per cent and improved its poll percentage from 44.99 in 1952 to 47.78 in 1957.

Third General Election 1962. The results of the third general election showed very little departure from the pattern set in the earlier two elections. Out of 494 parliamentary seats the Congress won 361. The Congress secured a 72 9 per cent majority in the Lok Sabha on a minority vote of 44.73 per cent. This was lower than the 1957 percentage.

Fourth General Election 1967. At the fourth general election, the performance of the Congress party, was comparatively poor. It secured only 283 seats out of 520. This time the Congress had a 54.42 per cent majority in the Lok Sabha, with a 40.82 percentage of total votes polled. The Jana Sangh came next with 9 29 per cent, followed by Swatantra 8.54, CPI 4 9 and CPM 4.4 per cent.

Fifth General Election 1971. This was a mid term election, the Lok Sabha having been dissolved on Dec 27 1971, one year and two months before the expiry of the full period. The results of the elections, startled the election pundits and political prophets. The Ruling Congress, under Indira Gandhi, swept the polls and came out with a massive majority of 350 out of 518 elective seats in the Lok Sabha.

Table 46

State-wise Performance of Different Parties

Lok Sabha, 1971

States & Territories	*Total*	*Cong (R)*	*Cong (O)*	*JS*	*SWA*	*PSP*	*SSP*	*CPM*	*CPI*	*BKD*	*DMK*	*RPI*	*Ind*	*Others*
A. P.	41	28	..					1	1		.		1	10
Assam	14	13												1
Bihar	53	39	3	2			2		5					2
Gujarat	24	11	11		2									
Haryana	9	7		1			.							1
H. Pradesh	4	3	..	.										
J & K	6	4	.										1	..
Karnataka	27	27			.									..
Kerala	19	6	.					2	3			.	1	7
M. P.	37	21		11			1		.				4	.
Maharashtra	45	42		..		1		.				1		.
Nagaland	1	..	..			..		.		.				1
Orissa	20	15	..	.	3		.		1				.	1
Punjab	13	10	..	..		.		.	2		.			1
Rajasthan	23	14		4	3					.	.	.	2	.
T. Nadu	39	9	1			.	.		4		23		1	1
U. P.	85	73	1	4		.	..		4	1	.		2	.
W. Bengal	40	13	.			1	.	20	3	.	..	..	.	3
A. & N. Islands	1	1	..	.		..	.	..	..	..	..	.	.	..
Chandigarh	1	1	.	..	..	.	...	.	.	.	..	.	..	.
D. & N. Haveli	1	1	.	..	..	..	.	..	..	..	..	..	..	..
Delhi	7	7	.	.	..	.	.	..	..	..	..	..	..	..
Goa, Daman & Diu	2	1		.	.	..	.	..	..	.	.	..	1	..
L. M. & A. Islands	1	1		..	.	..	..	..	..	..	..	..	..	..
Manipur	2	2		.		..	..	..	..	.	.	..	.	..
Pondicherry	1	1	..	..	..		..	..	.	.	.	..	..	..
Tripura	2	..	..	.	..	..	..	2	..	.	...	..	..	..
All India Total	518	350	16	22	8	2	3	25	23	1	23	1	13	28

State Elections

The normal term of a State Legislative Assembly is five years from the date of appointment for its first meeting. Election to every Legislative Assembly is direct and on the basis of adult suffrage.

General Elections & Mid-term Elections

The general elections to the State assemblies, since independence, present a confused picture primarily because new States and Territories have been created, and many territorial adjustments among the old and the new have been made.

As early as 1953, Andhra Pradesh was carved out in the South. This was followed by the large scale reorganisation of States in November, 1956 The number of States with independent legislatures was reduced from 24 to 14. Next, the ,State of Bombay was bifurcated in May, 1960 into Maharashtra and Gujarat. The latest reorganisation has come about as a result of the North Eastern Areas (Reorganisation) Act, 1971. The North Eastern region of the country, now has five States, namely, Assam, Nagaland, Meghalaya, Manipur and Tripura and two Union Territories, namely, Mizoram and Arunachal Pradesh.

Territorial reorganisation has led to consequential changes on the election scene. The composition of State Legislative Assemblies has altered, delimitation of assembly constituencies has been done afresh or re adjusted wherever necessary and orders relating to Scheduled Castes and Scheduled Tribes have been modified.

The Wrong Ceiling

Politicians, all over India, are busy pulling down the ceilings on land, incomes and what not, so as to usher in Socialism The ceiling of the Uttar Pradesh Vidhan Sabha apparently did not relish this business. It came down on the members of the UP Vidhan Sabha, as they were discussing the Urban Property Ceiling Bill on May 8, 1973. Happily, the falling blocks did not injure the legislators But business was closed for the day and immediate steps were taken to repair the ceiling, so as to avoid similar mishaps in future.

PTI--Lucknow, May 8, 1973.

Besides, mid-term elections in various States have added their own confusion. These elections, come at odd times upsetting the statutory pattern of general elections. Between the first general election in 1951-52 and the fifth general election in 1972, there have been as many as 20 mid-term elections in different States

Table 47

General Elections

1st	General Election	Dec. 1951- Jan. 1952
2nd	,,	Mar. 1957
3rd	,,	Feb. 1962
4th	,,	Feb. 1967
5th	,,	Mar.--Apr 1972

Table 48

Mid-term Elections

Pepsu (Punjab Haryana)	Feb	1954
Travancore Cochin (Kerala)	Feb.	1954
A. P.	Feb	1955
Kerala	Feb	1960
Orissa	June	1961
Goa, Daman & Diu	Dec	1963
Nagaland	Jan.	1964
Pondicherry	Aug	1964
Kerala	Mar.	1965
Haryana	May	1968
Bihar	Feb.	1969
Punjab	,,	,,
U. P.	,,	,,
Nagaland*	,,	,,
W. Bengal	,,	,,
Pondicherry	Mar.	1969
Kerala	Sep.	1970
Orissa	Mar.	1971
T. Nadu	,,	,,
W. Bengal	,,	,,

---

* Nagaland and Pondicherry, have had two general elections, in the normal course, though they were necessarily mid-term. The Legislative Assembly of Nagaland was first constituted in Jan. 1964 and that of Pondicherry in Aug. 1964.

1972 Elections

Sixteen States and two Union Territories held elections in March and one Union Territory held in April 1972 as shown below:

Five States and five Territories did not go to polls (1) Kerala (2) Nagaland (3) Orissa (4) T. Nadu (5) UP (States) (1) A & N. Islands (2) L M & A Islands (3) Chandigarh (4) D & N Haveli and (5) Arunachal Pradesh (Territories).

Table 49

State General Elections 1972

State	*Full Term* *Mid Term*	*No. of seats*	*No. of votes*
AP	FT	287	24,539,544
Assam	FT	114	6,296,198
Bihar	MT	318	30,925,420
Gujarat	FT	168	12,480,605
Haryana	MT	81	5,071,163
H. Pradesh	FT	68	1,804,765
J & K	FT	75	2,285,600
Karnataka	FT	216	15,083,923
MP	FT	296	20,832,129
Maharashtra	FT	270	25,891,761
Manipur	FT	60	605,939
Meghalaya	FT	60	416,742
Punjab	MT	104	7,242,166
Rajasthan	FT	184	13,939,000
Tripura	FT	60	762,427
W. Bengal	MT	280	22,304,856
Territories			
Delhi	FT	56	2,056,402
Goa, Daman & Diu	FT	30	450,277
Mizoram (April)	FT	30	156,147

Election Results

In Meghalaya the All Party Hill Leaders Conference, with 32 seats, won a slender majority—the Congress getting only nine seats· In the Union Territory of Goa, Daman and Diu, the Congress could secure only a solitary seat (in Daman). In Mizoram, the Congress got only six seats while the Mizo Union swept up 21 seats. But in all other States except Manipur, the Congress achieved a comfortable majority—a two-thirds majority in 12 of them.

Table 50

Election Results

State or Union Territory	*Seats*	*Results Declared*	*Congress (R)*	*Congress (O)*	*Swatantra*	*Jana Saugh*	*CPI*	*CPM*	*Socialist*	*Other Parties*	*Independents*
AP	287	287	219	—	2	—	7	1	—	5	53
Maharashtra	270	270	223	—	—	5	2	1	3	12	24
Karnataka	216	216	165	24	—	—	3	—	3	6	15
Gujarat	168	167	139	16	—	3	1	—	—	—	8
Goa, Daman & Diu	30	30	1	—	—	—	—	—	—	28†	1
Delhi	56	56	44	2	—	5	3	—	—	1	1
H. Pradesh	65	65	51	—	—	5	—	1	—	1	7
Assam	114	113	94	—	1	—	3	—	4	6	5
Bihar	318	318	167	30	2	26	35	—	33	13	12
Haryana	81	81	52	12	—	2	—	—	—	4	11
Jammu & Kashmir	75	74	57	—	—	3	—	—	—	5	9
MP	296	296	220	—	—	48	3	—	7	—	18
Tripura	60	60	41	—	—	—	1	16	—	2	—
Manipur	60	60	17	1	—	—	5	—	3	18††	16
Meghalaya	60	60	9	—	—	—	—	—	—	32§	16
Punjab	104	104	66	—	—	—	10	1	—	24¶	3
Rajasthan	184	184	145	1	11	8	4	—	4	—	11
W, Bengal	280	280	216	2	—	—	35	14	—	8	5
Mizoram*	30	30	6	—	—	—	—	—	—	21‡	3

---

* Mizo Union

† Maharashtrawadi Gomantak Party---18, United Goan Party---10

†† Manipuri People's Party---15, United Naga Integration Council---3

§ All Party Hill Leader's Conference---32

Akali Dal---24

Mizo Union---21

NATIONAL ECONOMY

THE Indian economy laboured under a double burden in 1971-72 and '72-73. There was a short fall in food production and a crazy spiral of rising prices. Food production in 73-74 does not give any cause for alarm but the spiral of rising prices does.

Rising Prices

The Economic Survey 1973-74 says, "The wholesale price index on December 29, 1973 was 24 per cent higher than at the end of December, 1972. This order of increase, coming, as it did, in the wake of an increase of nearly 14 per cent in wholesale prices between December, 1971 and December, 1972, was bound to cause widespread hardships to the people. Although from all accounts, the 1973 *kharif* crop was much better than that of 1972, this has not made any visible impact on prices. The strong upward pressure on prices which developed in 1972 was accentuated in 1973. Compared to an average increase of 7.8 percent in 1972, the wholesale price index went up by 19·2 per cent in 1973. The seriousness of the price situation gets magnified if, instead of looking at the average increase in the price level over the year. we compare the level of wholesale price index at the beginning and end of the year, Thus, whereas between December 1971 and December 1972 the wholesale price index increased by 13.7 per cent, the index in December 1973 was 24 per cent higher than in December 1972. Although price rose almost every month in 1973, the largest increase took place in the period May to July The index registered a mild decline for a brief period in August—September. However, from October 1973 onwards, the index again rose every month, though at a much smaller pace than in May to July".

"Inevitably, the increase in wholesale price had its repercussions on the cost of living. The All India Consumer Price Index, which went up by an average of 6.3 per cent in 1972, registered a further increase of 16,8 per cent in 1973. The index for December, 1973, at 260 was 24 per cent higher than the index for December, 1972".

There has been a persistent rise in prices in India from 1956 except for a brief halt in 1968. The First Five Year Plan (1951—56) witnessed a decline of 17.3 per cent in the index of wholesale prices. The Second Plan (1956—61) saw a rise of 35 per cent in prices, with articles of food and industrial raw materials leading.

From 1961 onwards, prices have been rising steadily till 1968, when for the first time in 13 years, the price rise was halted and even reversed, The Price index fell by 9.6 points from 175.7 in 1967 to 166.1 in 1968. But the fall was transient. From 1969 prices again shot up.

The increase in prices from 1970-71 to 1974-75 is shown in the following table.

Table 51

Wholesale price Index: 1970-71 to 1974-75*

	Percentage increase over the previous year
1970-71	2. 8
1971-72	6. 5
1972-73	13. 6
1973-74	29. 9
1974-75*	36. 0

---

* Annual rate of increase during the period April - July 1974.

The spiral of mounting prices is acknowledged all round but there appears to be much obscurantism regarding the causes. On the face of it, the mounting price spiral, is evidently a case of too much money chasing too few goods, that is to say, excessive money supply on the one hand and a relatively short supply position (of goods and services) on the other.

Money Supply

The Economic Survey (1973-74) analyses the money supply position vis-a vis the national economy as follows:

"The Indian monetary scene in recent years has been characterised by an unusually large expansion in money supply with the public. The annual rate of growth of money stock increased from 10.8 per cent in 1969-70 to 11.2 per cent in 1970-71. In 1971-72 and 1972-73 there was a further acceleration iu the rate of growth of money supply. Thus, whereas in 1971-72 money supply increased by 13.1 per cert in 1972-73 the observed growth rate was 15.9 per cent. During the current financial year money supply increased by 9.6 per cent between March 31, 1973 and January 25, 1974.

"The strong expansionary impact of monetary developments in recent years is also reflected in the behaviour of aggregate monetary resources with the public, consisting of money supply with the public and time deposits. The annual rate of growth of aggregate monetary resources went up from 12.4 per cent in 1969-70 to 17.7 per cent in 1972-73. In the current fiscal year, there was a further expansion of 14.1 per cent until January 25, 1974". (Also see Public Finance infra).

"Although there is no mechanical relationship between the growth of money supply and the behaviour of prices in short period, it cannot be denied that a sustained increase in money supply far in excess of the rate of growth of real output during the fourth plan period has exerted a strong upward pressure on prices In the first two years of the Plan i.e., 1969-70 and 1970-71, the impact on prices was cushioned by a sizeable growth of real output. However, in 1971-72 and 1972-73 while the growth of money supply accelerated, the rate of growth of real output declined. In the current fiscal year, as a result of a considerable increase in real output, the divergence between the rate of growth of money stock and that of real output is likely to be reduced. However, the divergence is still large and considering also the impact of disproportionate increase in money stock during the last two years, the imbalance between aggregate demand and aggregate output remains".

The Economic Survey

This view, in essence, is supported by Prof C. N. Vakil, who on behalf of a number of economists submitted a memorandum, to the Prime Minister in Feb. 1974. He says "the price increase, which has continued unabated, despite the bumper *kharif* harvest in 1973-74, is the outcome of an excessive imbalance between the annual rate of growth in the stock of money and in the stock of basic consumption, and related production necessities. During the end of 1969 and the third week of January 1974, money supply had increased by 70 per cent, the level of wholesale prices by 60 per cent and the food articles by 62 per cent. Real output and supplies of necessities were only about 12 per cent and 10 per cent higher in 1973-74 as compared to 1969-70".

The National Council of Applied Economic Research has pointed out "The increase in money supply has been literally phenomenal. Within less than three years, i e., from April 1971 to November 1973, it has increased by Rs. 3,000 crores (from Rs 7,280 crores to Rs. 10,273 crores) Of this, Rs 2,000 crores has been added since April 1972. From April 1973 to November 1973 the increase has been Rs. 720 crores. All this shows that the measures contemplated or taken by government to arrest the undue growth of money supply have so far had no success".

Table 52
Selected Economic Indicators

(percentage change over previous year)

	1969-70	*1970-71*	*1971-72*	*1972-73*	*1973-74*
National income at constant prices*	5.5	4.3	1.7	1.7	6.0
Agricultural Production	6.7	7.3	0.8	9.1	10 to 15
Food production	5.8	8.9	3.0	9.5	–
Industrial production	7.4	3.0	3.3	5.3	2.5**
Electricity generated	14.4	8.4	8.8	4.8	8.6**
Wholesale prices	3.7	5.5	4.0	9.9	21.1§
Money supply	10.8	11.2	13.1	15.9	9.6†
imports	-17.1	3.3	11.6	-1.5	33.7‡
Exports	4.1	8.6	4.8	21.9	20.0
Freight carried by railways	2.5	-0.7	4.6	2.5	--

* Provisional Estimate.

** April-June, 1973, compared to April-June, 1972.

§ April - December, 1973, compared to April-December, 1972.

† As on January 25, 1974, compared to March 31, 1973.

‡ April- October, 1973, compared to April- October, 1972.

Inflation

There is always a time-lag between investment of money and the production of goods. If the pace of production, is artificially pushed up by heavy investments —as in planning– the increase of money supply, involved in the investments, will be reflected as higher prices for the consumer goods produced. This is a natural consequence of heavy investments.

But this rise in price need not be self-sustaining, let alone, self-accelerating, as long as the investments yield in a reasonable period of time, a relative increase in the output of goods. But if it does not and we have greater and greater investments and take longer and longer time lags, for production, higher prices will come to stay and breed still higher prices.

As Prof V. K. R. V. Rao says "The price rise becomes inflationary only when every rise in the price level becomes the base for a further rise in the price level and the process becomes not only self sustaining but also self-accelerating".

We had reached this stage of inflation in 1973 and did not know it.

Production

The only effective answer to this sort of inflation is production, 'aggressive production' as Finance Minister Chavan described it in 1972. It is here, that the government fumbled. Obsessed with the negative socialism of the Dutt Committee the government seemed more interested in obstructing production than in promoting it. For example, it was found that many private companies, including the so called monopoly houses, were producing more than what their sanctioned capacity entitled them to. Instead of being thankful for this production, the government of India proceeded to take action against such firms. It is only in the latter half of 1974 that practical wisdom at last dawned on the government and it was decided to regularise such production.

Industrial production in 1973 was almost stagnant at the 1972 level. As a result, during the Fourth Plan as a whole, the average rate of increase of industrial production of 4 per cent was not only less than half of the plan target of 9 per cent per annum but also well below the growth rate of 7 5 per cent observed during the preceding two decades.

Table 53

Index of industrial production

Year	Index level implicit in the Fourth Plan target	*Actual* Average level of index	Percentage variation over previous year or quarter
1969	175.6	172.5	7.1
1970	191.3	180.5	4.6
1971	208.5	186.1	3.1
1972	227.3	199.2	7.0
1973	247.8	199.8	0.3
1973			
January March		197.0	3.2
April June		194 4	1.3
July--September		200.4	3.0
October-December		206.5	3.0
1974			
January -March		199.9(a)	3.2
April June		202.8(a)	1.5

(a) Estimated by the Commerce Research Bureau.

See *Industrial Production* infra

Anti-inflationary Steps

1. Regulatory Measures

The Government of India has announced a number of measures, with a view to curbing inflation. On July 6, 1974, the President promulgated two ordinances, The Companies (Temporary Restrictions Dividends) Ordinance and The Additional Emoluments (Compulsory Deposit) Ordinance. This was followed up on July 17, by The Compulsory Deposit Scheme (Income Tax Payers) Ordinance. New guidelines for the issue of Bonus Shares, increase in bankrate and selective credit restrictions were among the other measures adopted.

All these measures, by implication, laid the blame for inflation upon the private sector and the people The real culprits, the government and its expensive progeny, Public Sector Undertakings, were treated as the innocent victims of an inflation, enginneered by private enterprise, smuggler kings, black money barons, income tax-evaders, hoarders and blackmarketeers. These Ordinances, guidelines, increase in bank rate and credit restrictions have combined to put private sector and the people in a tight spot.

Consider the interest rates. The nationalised banks have put up their rates to 20–24 per cent, even for advances against gold, which is the only sheild of the common man in financial emergencies. While it is still illegal for moneylenders to charge more than 12 per cent, it was made quite legal and even obligatory for the nationalised banks to collect 20 to 24 per cent from the harrassed people. The latest figures available (Aug. 1974) show that the Wholesale Price Index has not responded to these measures. (See Table below).

Punitive measures

Punitive measures against smugglers, blackmarketeers, tax evaders and the rest are the latest steps that have been taken against inflation. The allegation is that Smuggler kings and Blackmoney Barons have created a parallel econony, which is playing havoc with the national economy. A nation-wide hunt for smugglers and blackmarketeers was started in August and extensive publicity was given to arrests and detentions unearthing of unaccounted money and dehoarding of hoarded goods. Sensational news items regarding smugglers and blackmarketeers filled the newspapers and provided exciting reading to, the public.

All this is very well. What the government forgets is that black money is bred by controls. And it is always building up, one way or another. So long as the pernicious system known as the License-Permit-Quota-Raj continues black money will grow and corrupt the whole nation. If the present day black money barons are garotted, others will take their place.

However, it is claimed that this campaign has brought out hoarded goods and brought down the mounting prices.

Stagflation

The official claim that prices have started to come down, appears to be borne out by textiles. As from Nov. 1974, textile goods are being offered at reduced prices. All textile shops, big and small, throughout India have announced reduction sales at rates varying from 10 to 40 per cent. The Textile mills argue that they were compelled to clear out stocks, because sales had fallen greatly and stocks at the mills were accumulating In view of the severe restrictions on bank advances, their resources had been strained to the breaking point and they were cutting down production. Simiiar conditions exist in the Engineering industries, which also report falling sales.

This looks dangerously like Stagflation. Stagflation according to Prof. Paul A. Samuelson "is a new name for a new disease. Stagflation involves inflationary rise in prices and wages, at the same that people are unable to find jobs and firms are unable to find customers for what their plants can produce". In other words stagflation is made up of four elements (1) inflation or excessive money supply (2) Rising prices and wages (3) Unemployment and (4) Stagnation in production. All the four elements in different degrees are in operation in our economy. It looks now, as if we are on the threshold of stagflation. In the words of Prof. Minhas "A rampant inflation in a stagnant economy, is the most regressive form of taxation. It hurts the poor in their stomachs. This is what is happening in India today."

Wholesale Prices

The Official wholesale price index for 'all commodities' (with the year ended March, 1962 as 100) advanced by 2.5 per cent to 323.0 during August, 1974, as against 315.1 for the previous month At this level the index for August, 1974 was higher by 28.6 per cent when compared to 251.1 for August, 1973. The rise in the 'all commodities' was shared by an advance in the indices for 'food articles' by 2.4 per cent to 375.5, 'fuel, power, light and lubricants' by 0.1 per cent to 313.1, 'industrial raw materials' by 3.2 per cent to 353.1, 'chemicals' by 0.2 per cent to 287.5, 'machinery and transport equipment by 6.2 per cent to 255.8 and 'manufactures' by 2.9 per cent to 261.0. However, the index for 'liquor and tobacco' declined by 2.0 per cent to 300.1 during the month under review.

Table 54

Index Numbers of Wholesale Prices by Groups & Sub-Groups

(Base 1961-62=100)

Groups & sub-group	*August '74*	*July ,74*	*August '73*	*Percentage rise(+) or fall (—)* *Aug 1974 July 1974*	*Aug 1974 Aug 1973*
Food Articles	375.5	366.6	298,8	+2.4	+25·7
Foodgrains	412 2	391.5	293.5	+5.3	+40.4
Cereals	390.7	372.0	268.8	+5.0	+45.3
Pulses	508 8	479.1	405.0	+6.2	+25.6
Fruits & vegetables	349.1	374.8	284.4	—6.9	+22.7
Milk & milk products	334.4	335.5	295.9	—0.3	+13.0
Edible oils	422.2	413.9	359.2	+2.0	+17·5
Fish, eggs & meat	546.2	540.4	395.9	+1.1	+38.0
Sugar & allied products	310.8	293.9	298.4	+5 8	+4.2
Others	278.7	287.4	206.1	—3.0	+35.8
Liquor & Tobacco	300.1	306.2	247.5	—2.0	+21.3
Liquor	215.2	215·2	176.0	Nil	+22.3
Tobacco	304.0	310.3	250.8	—2.0	+21.2
Fuel, Power Light & Lubricants	313.1	312.9	190.9	+0.1	+64.0
Coal	263.2	263.2	190.4	Nil	+38.2
Coke	357.3	357.3	268.4	Nil	+33.1
Mineral oils	384.0	383.6	189.7	+0.1	+102.4
Rectified spirit	323.1	323 1	296.8	Nil	+8.9
Electricity	186.5	186.5	161.3	Nil	+15.6
Castor oil	385.7	387.5	414.4	—0.5	—6.9
Industrial Raw Materials	353.1	342·3	806.2	+3.2	+15.3
Fibres	298.9	285.5	220.1	+4.7	+35.8
Oilseeds	439.3	423 7	394.7	+3.7	+11.3
Minerals	158.1	158.1	157.0	Nil	+0.7
Others	286.3	288.7	282.3	—0.8	+1.4
Chemicals	287.5	286.8	214.5	+0.2	+34.0
Machinery & Transport Equipment	255.8	240.9	177.7	+6.2	+44.0
Electrical machinery	233.1	233.2	174.1	Neg	+33·9
Non-Electrical machinery	296.8	267.2	191.7	+11·1	+54 8
Transport equipment	202.0	200.4	151.1	+0.8	+33.7
Manufactures	261.0	253.7	194.7	+2.9	+34.1
Intermediate Products	339.1	337.3	245.0	+0.5	+38.4
Textile yarn	289.1	285.9	210.8	+1.1	+37.1
Leathers	220 9	236.3	223.6	—6.5	—1.2
Metals	403.8	402.7	276.7	+0.3	+45.9
Linseed Oil	463.6	434.4	333.9	+6.7	+38.8
Finished Products	240.8	233.5	182.5	+3.1	+31.9
Textiles	238.8	230.7	179.6	+3·5	+33.0
Metal Products	272.8	267.3	212.0	+2.1	+28.7
Non-metallic products	247.7	225.9	180.9	+9.7	+36.9
Chemical products	237.4	235.2	165.9	+0.9	+43.1
Leather products (Shoes)	125.4	125.4	107.3	Nil	+16.0
Rubber products	220.8	213.9	161.3	+3·2	+36.9
Paper products	217.4	213.4	143·3	+1.9	+51.7
Oilcakes	361.5	340.6	352.0	+6.1	+2.7
Miscellaneous products	170.4	168·8	129.9	+0.9	+31.2
All Commodities	323·0	315.1	251.1	+2.5	+28.6

Source: Office of the Economic Adviser to the Government of India Ministry of Industrial Development.

DEFENCE

Administration

The President of India is the Supreme Commander of the Armed Forces. The *President, however is only the titular head.* The *actual* administration and operational control of the *armed* forces are vested in the Ministry of Defence and the Service, Headquarters of the Army, Navy and Air Force. The Ministry of Defence is mainly responsible for (1) co-ordination of the development and activities of the three Services (2) decisions on policy matters and (3) provision of financial resources. Although the over-all control of the three Services is vested in the Ministry of Defence, the Services normally function through their respective Service Headquarters, headed by the Chiefs of the Army Staff, Naval Staff and the Air Staff.

Indo-Pak War. The Defence Services have been re-organised and re-equipped after the reverses India suffered in the Chinese attack in Ladakh and NEFA (now Arunachal Pradesh) in 1962. The mettle of the re-organised Service was put to the test in 1971. In the light of experience, gained during the Indo-Pak War, the armed forces were re-organised in 1973.

Defence Expenditure. India's defence expenditure both on per capita basis and as a percentage of the Gross National Product is one of the lowest in the world In 1971-72 our defence expenditure of Rs. 1,411 crores, formed only 3.8 per cent of the G. N. P or about three dollars per capita. The 1972-73 budget provided for a defence expenditure of Rs. 1,404 crores.

In 1973-74, the Defence expenses came to Rs. 1750 crores. In spite of several constraints on the economy, the Defence expenditure continued to rise with the 1974-75 budget providing Rs. 1915 crores, initially and adding Rs. 75 crores in a Supplementary budget.

The Army

Since 1964, the overall sanctioned strength of the Army has remained at 8.28 lakhs all ranks. Over the past eight years, however, the fighting capability has increased from 21 to 25. Division force and the teeth-to-tail ratio was stepped upto 62.38.

The army is organised into four Commands—*Western, Eastern, Southern* and *Central*—each under a General Officer Commanding-in-Chief of the rank of Lieutenant General. The Commands are divided into Areas, each under a General, Officer Commanding of the rank of Major General. The Areas are sub-divided into Sub-Areas, each under a Brigadier. In 1973 the Western Command was bifurcated into the Northern Command and the Western Command. The Northern Command is entrusted with the defence of borders with Pakistan and China in Jammu and Kashmir, Himachal and Punjab. The Western Command remains in charge of the rest of the areas of the old Western Command.

The Army Headquarters, New Delhi, functions under the Chief of Army Staff assisted by five Principal Staff Officers, the Vice-Chief of the Army Staff, Deputy Chief of the Army Staff, Adjutant General, Master General of Ordnance and Quarter-Master General—all Lieut. Generals.

The Engineer-in-Chief is the head of the Corps of Engineers. He advises the Chiefs of Staff of the three Services and the Director General of Ordnance Factories on all matters concerning works, including their planning and construction.

The Millitary Secretary maintains personal records of officers and is responsible for their postings and transfers, promotions and retirement as well as for the grant of honorary ranks.

The Navy

The Naval Headquarters in New Delhi is in overall charge of all naval operations. The Navy is headed by the Chief of the Naval Staff with Principal Staff Officers As reorganised in 1973, three Principal Staff Officers, namely, the Chief of Personnel, the Chief of Material and the Vice-Chief of the Naval Staff will hold the rank of Vice Admiral. The two other Principal Staff Officers, the Chief of Logistics and the Deputy Chief of Naval Staff newly created in 1973) will have the rank of Rear Admirals. Under the new set-up the Navy will have four Vice-Admirals, three at the Headquarters and one in charge of the Western Naval Command.

There will be thirteen Rear-Admirals, six at the Headquarters, one at the National Defence College, Delhi and the others, F O C-in-C of Eastern Naval Command, F O C Western Fleet, F O C Eastern Fleet, Director General, Naval Dock Yard Expansion Scheme, Bombay and Director General, Naval Dockyard, Visakhapatanam.

The Navy has two Fleets—the Western Fleet and the Eastern Fleet. The two

Fleets consist of the aircraft carrier INS Vikrant (Flagship of the Navy), two cruisers, two destroyer squadrons, a number of frigate squadrons, including some of the latest types of anti-submarine and anti-aircraft frigates, a squadron of anti submarine patrol vessels, three mine-sweeping squadrons, conventional type submarines, a submarine depot ship and fast boats carrying surface to-surface guided missiles A squadron of Sea—King has been acquired to augment the air component of the aircraft carrier INS Vikrant.

The Navy has control of all coastal batteries.

I N S Nilgiri, the first British designed Indian-built warship of the Leander class was commissioned on June 3, 1972 by the Prime Minister. Another frigate I N S Udayagiri was launched in Oct. 1972 and a third, I N S Himgiri is to be commissioned in 1973 74.

Air Force

The Chief of the Air Staff is assisted by four Principal Staff Officers controlling the main branches of the Air Headquarters, viz, the Vice Chief of the Air Staff, the Deputy Chief of the Air Staff, the Air Officer-in Charge Administration and the Air Officer-in-Charge Maintenance, all holding the rank of Air Marshals

Under the Air Headquarters come five major Air Force formations, namely Western, Eastern and Central Air commands and Training and Maintenance Commands

The Indian Air Force has 45 squadrons and is one of the more important air forces of the world today. In its combat squadrons, a significant proportion is current supersonic aircraft. The MIG-21 and Gnat interceptors, the HF-24 (Maurut) fighter bomber, HS 748 transport aircraft, and Alouette-III helicopters are produced in the country.

The transport fleet, which till some years ago consisted mainly of Dakotas and Fairchild Packets, has been modernised and now includes Otters, AN-12s, and some Caribous SU-7. The helicopter fleet consists mainly of MI-4s and Alouette-III helicopters. India-built HT-2, 1 6 G Texan Dakotas and Vampires are used for training purposes.

Training Institutions

National Defence College set up at New Delhi in 1960, trains senior officers of the three Services on the pattern of the Imperial Defence College in the UK.

National Defence Academy, Khadakvasla is the main feeder source for ficers of the three Services.

The Academy conducts a three year combined basic training course for cadets of all the three Services, after which they are sent for specialised training.

Defence Services Staff College. Training in their respective Service establishments is imparted to serving officers on an inter-Service basis at the Defence Services Staff College, Wellington. About 150 officers from the three Services are trained every year, the duration of the course being 10 months.

Armed Forces Medical College, Poona, besides imparting training to newly commissioned medical officers, runs refresher courses for medical officers of the Armed Forces to keep them up to date in their profession.

Indian Military College. Run on the lines of public schools, the Rashtriya Indian Military College, Dehra Dun, prepares future officers for the three Services by imparting preliminary pre-cadet training to such pupils who desire subsequently to choose a military career. It serves as a feeder to the National Defence Academy.

Army Colleges and Schools. The Indian Military Academy, Dehra Dun, is the premier centre for training officers of the Army. The main source of entry into the Academy is the National Defence Academy.

The Armoured Corps Centre and School, Ahmednagar, undertakes the training of regimental instructors, squadron commanders and regional commanders of the corps. The College of Military Engineering, Kirkee, imparts training to officers and other ranks in all aspects of military engineering.

The School of Signals at Mhow imparts basic and advanced technical training in telecommunications and signal tactics. The School of Artillery at Deolali provides training in field, anti tank and anti-aircraft artillery. The Infantry School at Mhow conducts courses, in the tactical and administrative handling of infantry units and sub units for senior officers and junior commanders of all corps in the Army. The Ordnance School at Jabalpur imparts specialised corps training in the identification handling, storage, care, custody and preservation of all items, including ammunition and explosives, stocked by ordnance depots.

Some of the other Army training centres and schools are: the Service Corps School, Bareilly; the Remounts and Veterinary Centre and School, Meerut; the School of Physical Training, Poona; the Army and Air Transport Support School, Agra; the School of Mechanical Transport, Faizabad; the Corps of Military Police Centre and School, Pachmarhi; the Military School of Music, Pachmarhi; Army Cadet College, Poona and the Electrical and Mechanical Engineering School, Trimulgherry.

Naval Training Centres. Except for highly specialised technical courses, training of all officers and men of the Navy is undertaken at the main naval training centres located at Cochin, Bombay and Visakapatnam.

The principal training centres of the Navy are *INS Vendurуthy* and the *Naval Air Station Garuda* both situated at Cochin. *INS Vendurуthy* is the premier training establishment, comprising technical schools for gunnery, communications, navigation and torpedo and anti-submarine. *INS Garuda* has the training aircraft of the Navy and some technical schools.

At *INS Shivaji*, Lonavla (Maharashtra), mechanical engineers and artificers are trained.

INS Valsura, Jamnagar, trains officers and men of the Electrical Branch of the Service.

New recruits coming into the Navy are trained at *INS Circars*, Visakhapatnam, and on completion of their courses become sailors. Officers and men of the Supply and Secretariat Branch are trained at *INS Hamla* in Bombay. Sea training is imparted by the Fleet.

Air Force Colleges and Schools. The basic flying training for pupil pilots is imparted at the Pilot Training Establishment and the intermediate training at the Air Force Flying College, Jodhpur. Advanced flying and conversion training on jets and multi-engined aircraft is conducted at the Jet Training and Transport Training Wings of the Air Force at Hyderabad and Yelahanka. Pupil navigators also have their initial training at Jodhpur and advanced training at Bangalore before graduating as fullfledged aircrew.

The Air Force Administrative College, Coimbatore, trains officers in various ground duties, and medical officers receive training at the School of Aviation Medicine, Bangalore. The Air Force Technical College, Jalahalli, trains officers in engineering signals and armament and electrical engineering.

Flying instructors are trained in a separate school at Tambaram. Another school, located at Tambaram, trains airmen in technical trades. A school for higher staff studies in combined land air warfare has been instituted at Hyderabad.

Paratroopers for air borne units of the Army are trained at the Paratroopers Training School, Agra.

Auxiliary Forces

The Territorial Army which was raised in October 1949, is designed to give the youth of the country an opportunity for receiving military training in their spare time and to serve the country in times of emergency by providing units to the regular Army. Membership of the Territorial Army does not involve service outside India except under a special order of the Union Government. The Territorial Army is composed of Units of Artillery, infantry, the Corps of Engineers (including Railways, Ports, Docks and Inland Waterways). the Corps of Signals (including Posts and Telegraphs), the Medical Corps and the Corps of Electrical and Mechanical Engineers.

The Territorial Army has two types of units—provincial and urban. Training for recruits in the provincial units lasts 30 days. In the urban units training is given for 32 days in the evenings after working hours, at week-ends or on holidays. Every member of the Territorial Army who has undergone recruit training is liable to undergo annual training for two calendar months in the provincial units and for a period varying from a minimum of 144 hours to a maximum of 240 hours in the urban units, including a camp of eight to fourteen days.

The National Cadet Corps consists of three Divisions namely, Senior, Junior and Girls. The Senior and Junior Divisions are composed of three Wings—Army, Navy and Air Force. The Army Wing has units of the Armoured Corps, the Artillery, the Corps of Engineers, the Signals Corps, the Infantry, the Corps of Electrical and Mechanical and the Medical Corps.

In addition to normal basic training, cadets of the technical units receive specialised training.

Participation in the NCC was made compulsory for all able-bodied male college students in 1964. In view of the report of the Education Commission which suggested a National Service Programme for students and the growing opinion among educationists in favour of making NCC training optional, all universities but nine have made participation in NCC entirely voluntary.

The Auxiliary Cadet Corps was started to cope with the demand for military training for boys and girls in schools who cannot get admission to the National Cadet Corps. It has now been replaced by National Fitness Corps.

PLANNING

Planning Commission

A planned economy for development had been advocated in India, long before independence. But it was only after independence that a planned programme of development was taken up. In March, 1950, the Government of India set up a Planning Commission to prepare a plan for 'the most effective and balanced utilisation of the country's resources'. The Planning Commission has since been functioning as the king-pin of national development.

The First plan was a rather haphazard venture, as the Planning Commission had no reliable statistics to work upon. Besides, the plan had to be co-related to the prevailing activities of various government departments. The result was a patchwork of isolated projects. All the same, the plan had a national character and was based on a rational hypothesis. It laid emphasis on agriculture, irrigation, power and transport so as to provide an infra-structure for rapid industrial expansion in future. The plan turned out to be more than a success, mainly because it was supported by two good harvests in the last two years. "Harvests" as the World Bank report of 1970 says, "make all the difference in the Indian economy, which operates so near the subsistence margin."

Second Plan (1956—61)

The Second Plan (1956-61) was a big leap forward and appeared a little too ambitious, in the beginning It laid special stress on heavy industries. The industrial policy resolution was amended so as to shift the primary responsibility for development on the public sector. Private sector was left to handle consumer industries. But the great quantity of imports that the plan envisaged in both the public and private sectors, practically denuded India's accumulated sterling balances (as much as Rs. 500 crores in two years) and compelled the country to seek extensive foreign aid. Agriculture and small-scale industries remained sluggish, without adding any momentum to development. "Inflationary pressures too rose sharply in the early years of the Second Plan and although a massive tax effort was put through, the Plan ended up with far greater deficit financing than was envisaged". However, by the end of the Second Plan agricultural output had increased and price situation had eased.

Third Plan (1961-66)

Third Plan rode on a wave of high expectations following the overall growth of the Indian economy in the first two Plan periods. The Third Plan was essentially an attempt to create a self-sustaining, economy for India. Internal resources, having been strained to the utmost, the Plan had to rely on heavy foreign aid. But reliance on foreign aid was approved in the immediate future, so as to avoid foreign aid in the mediate future. In other words, like the war to end war, India accepted foreign aid so as to end foreign aid altogetber.

Review of the Third Plan. During the Third Plan national income (revised series) at 1960—61 prices rose by 20 per cent in the first four years and registered a decline, 5.6 per cent in the last year, Per capita real income in 1965-66 was about the same as it was in 1960—61, the result of the meagre growth rate of national income having been almost completely neutralised by the 2.5 per cent rate of growth of population.

Agriculture played a devastating role with production remaining indifferent in the first three years and precipitately falling in the last two, mainly on account of drought. The Indo-Pakistan war of 1965 aggravated an already difficult situation. This led to large-scale imports of foodgrains and other agricultural commodities, a greater dependence on foreign aid and to a larger deficit financing.

On the balance of payments side, strains had begun to develop at the very beginning of the Third Plan. In the face of rising food and other imports and insufficient increase in exports the situation worsened; the country sought larger and larger foreign assistance. Hostilities in 1965 followed by the two bad harvests further aggravated an already difficult situation. In order to meet the increase in defence expenditure and other elements of non-Plan expenditure, a bold effort at raising taxes was made during some years of the Third Plan and in particular in 1963-64. The larger commitments of non-Plan expenditure and the rising costs of investment could not however, be fully met by domestic resource mobilisation. In the event, inflationary pressures were generated affecting domestic savings and eroding resources for financing development.

A growing trade deficit and mounting debt obligations, led to more and more borrowings from the International Monetary Fund. The rupee was devalued in June, 1966, to little purpose, as it soon turned out. The Third Plan had become stuck.

Annual Plans 1966-69

The Third Plan having gone awry, planning itself had become discredited in the eyes of many and demands were made from different quarters to declare a Plan holiday. But neither the Government nor the Planning Commission admitted failure. They refused to fall in with the demand for a Plan holiday and proceeded to draw up the Fourth Plan as from 1965-67. But the condition of the economy and the exigencies of circumstances were such that the Fourth Plan was put into operation piece-meal in the form of Annual Plans The Annual Plans continued for 1966 67, 1967-68 and 1968-69

Depressed farm output for two consecutive years 1965—66 and 1966-67, decline in the rate of growth of industrial production and pressure on the price line eroded resources available for the Annual Plans Receipts from taxes were below the anticipated levels and non Plan expenditures were higher because of increases in dearness allowance to Government employees, grant of food subsidies, higher cost of Government purchases and increase in 1966 67 in the rupee cost of interest on foreign loans due to devaluation.

The shortfall in the Annual Plans was made up by deficit financing, which added upto Rs. 682 crores during the three annual plans—Rs 189 crores (1966-67) Rs. 224 crores (1967-68) and Rs. 269 crores (1968-69)

Fourth Plan (1969—74)

The Fourth Plan (1969—74) officially commenced on April 1, 1969 with the publication of the Draft Plan Growth with stability was the main objective of the Plan. Agriculture was expected to lead the growth with a rate of 5 per cent per annum. Such a growth in agriculture would set up a chain reaction in several spheres of economy. The target for the growth rate of industry was set at about nine per cent per annum Altogether the national income was expected to increase at the rate of 5.5 per cent per annum. Allowing for the increase of population at the rate of about 2.5 per cent, the per capita income was expected to increase at the rate of 3 per cent per annum or about 16 per cent in the Fourth Plan period.

Annual Plan 1973—74

The Annual Plan for 1973—74, the last year of the Fourth Plan as reported to both Houses of Parliament was published on May 16, 1973

The Plan outlay will be financed to the extent of 88 per cent from domestic resources and deficit financing has been kept at a "modest level" of Rs. 85 crores.

External assistance was assumed at Rs 448 crores (as against Rs. 380 crores last year)

The total outlay of the Plan is Rs. 4,364 25 crores of which the States' share is Rs 1,836 crores, inclusive of the Central assistance of Rs. 855 crores

The outlay represents a 10 per cent step-up over the plan allocation for 1972 73 and a little over 27 per cent of the Fourth Plan outlay in the Public Sector.

Fourth Plan-Growth Rates

During the fourth Plan period, against the targeted growth rate of 5.7 per cent, the economy experienced fluctuating annual growth rates

Table 55

Rates of Growth during Fourth Five Year Plan

Sector Sub-Sector	*Fourth Plan Projections*	*1969-70*	*1970-71*	*1971-72*	*1972-73*
1. Agriculture	5.0	5.1	4.7	1.7	5.5
2. Mining & Manufacturing	7.7	5.0	1.8	2.9	4.2
3 Electricity, Gas and Water Supply	9.3	9.4	4.8	6.6	7.2
4, Construction	8.6	6.7	24.8	1.8	9.2
5. Transport & Communication	6.4	5.8	4.9	5.0	3.8
6 Public Administration and Defence	2.6	7.4	2.5	12.1	8.9
7. Other services	4.7	6.5	1.0	3.8	4.1
8 Net Domestic Product at factor cost	5.7	5.2	4.2	1.7	0.

Note: The rates of growth given above are subject to revision as and when the estimates of Net Domestic Product get revised.

FIFTH PLAN

(1974—79)

Objectives—The concrete objectives of the fifth five-year Plan are the two strategic goals of removal of poverty and attainment of economic self-reliance. To attain the two basic objectives it is necessary that we achieve higher rate of growth better distribution of incomes and a very significant step up in the domestic rate of savings during the fifth five-year Plan.

Perspective Plan

The Fifth Plan has been drawn up as a part of a long-term Perspective Plan covering the period 1974 75 to 1985 86. The Perspective Plan describes the emerging demographic structure trends in urbanisation, the increase in labour force, the external sector of the economy and the long term output structure of the Indian economy in consonance with the objective of removal of poverty. Long-term rate of growth which Indian economy has to achieve on self-sustaining basis will be 6.2 per cent per annum. One of the fundamental conclusions of the Perspective Plan is that the *creation of employment is going to be the single most important challenge to development planning* during the perspective period.

Resources — Non-inflationary development is the keynote of the fifth five-year Plan This will be acheived by attaining the needed rate of growth of wage goods, especially agricultural for mass-consumption and accelerated development of the 'core' sectors i e. steel, coal, cement fertiliser, power etc.

The principal instruments of resource mobilisation are taxation, borrowings and pricing policies in relation to public enterprises. In essence, the stepping up of public savings is the corner stone of the resource mobilisation strategy.

Private Sector

The private sector will have to play an important role in savings and investments. Household savings, will be one of the main sources. Domestic expenses on non-essential items will have to be cut down and the savings thus effected will have to be channelled into productve investments. Similarly, the private corporate sector should be induced to create more savings, by an "appropriate mix of incentives and disincentives".

External Assistance

External assistance will be brought down to the minimum level possible. This means, that our exports have to be developed, so as to earn enough foreign exchange Similarly, Science and Technology, will have to play the crucial role in making the nation self-sufficient.

A Special Objective.

A Special objective of the Plan is to increase the consumption of the lowest 30 per cent of our population The principal instrument that will be utilised for this purpose is creation of additional employment opportunities.

Table 56

Projected Sectoral Growth Plan

Sector	*Average annual rate growth (%)* *Value of output*	*Value added*
1 Agriculture	4 67	3.89
2 Mining and Manufacturing	8.27	8.11
(a) Mining	10.47	9.86
(b Manufacturing	8.21	7.98
(i) food products	5 12	4.78
(ii) textiles	5.12	4.10
(iii) wood and paper products	6.90	4 93
(iv) leather and rubber products	7 65	7.32
v) chemical products	12 43	12 35
(vi) coal and petroleum products	10 61	6.87
vii) non-metallic mineral products	8 70	8.20
(viii) basic metals	12.58	11.76
(ix) metal products	8.86	8.64
(x) non-electrical engineering products	13.58	13 56
(xi) electrical engineering products	9.49	8.91
(xii) transport equipment	7.24	7.24
(xiii) instruments	9.28	8 20
(xiv) miscellaneous industries	8.60	8.41
3. Electricity	10.84	9.87
4 Construction	8.77	8.70
5 Transport	5.13	5.63
6. Services	6 27	6.65
Total		5 50

Outlay

An outlay of Rs. 53,411 crores is envisaged for the fifth five-year Plan. Of the aggregate outlay Rs. 37,250 crores is in the public sector and Rs. 16,161 crores in the private sector. In the public sector Rs. 31,670 crores are provided for investment and Rs. 5,580 crores for current outlay.

Out of the total investment of Rs. 47,561 crores, Rs. 45,130 crores will be financed by domestic savings and Rs. 2431 crores from the net inflow of funds from the rest of the world. The distribution of total investment between different sectors is given below:

		Rs. (crores)
1.	Public Sector	31400
2.	Private sector	16161
	(i) Corporate	5261
	(ii) Co-operative	684
	(iii) Household	10216
3.	Total investment	47561

Table 57

Public Sector Outlays

(Rs crores)

	Heads of development	*Centre*	*States*	*Union Territories*	*Total*
1.	Agriculture	1946	2717	67	4730
2.	Irrigation	140	2515	26	2681
3.	Power	738	5343	109	6190
4.	Mining & Manufacture	8180	742	17	8939
5.	Construction	25	—	—	25
6.	Transport and Communication	5727	1297	91	7115
7.	Trade & Storage	194	11	—	205
8.	Housing and Real Estate	237	338	25	2600
9.	Banking, Insurance	90	—	—	90
10.	Public Administration & Defence	60	30	8	98
11.	Other Services	1953	3580	257	5790
	(i) Education	484	1155	87	1726
	(ii) Health	253	517	26	796
	(iii) Family planning	516	—	—	516
	(iv) Nutrition	70	330	—	400
	(v) Urban development	252	272	19	543
	(vi) Water supply	16	924	82	1022
	(vii) Social welfare	200	26	3	229
	(viii) Welfare of backward classes	55	167	4	226
	(ix) Labour welfare	15	38	4	57
	(x) Miscellaneous	92	151	32	275
12.	Science and Technology*	419	—	—	419
13	Hill and Tribal Areas	--	500	—	500
	Total	19577	17075	600**	37250†

---

* Includes provision for the Departments of Atomic Energy, Space, Science and Technology, Council of Scientific and Industrial Research, Supply and Anthropological Survey. In addition, a provision of Rs. 614 crores for Science and Technology is included in the respective sectors.

** Tentative,

† The sectoral outlays total upto Rs 37382 crores. A reduction of Rs. 132 crores would be effected to keep the total at Rs. 37250 crores or alternatively additional resources to this extent would be found.

National Programme of Minimum Needs

The national programme for minimum needs as incorporated in the fifth Plan envisages a frontal attack on Socio-economic problem by attempting to allocate adequate resources for social consumption for all areas. In this programme, attention is concentrated on the programmes relating to elementary education, rural health, nutrition, drinking water, provision of house sites, slum improvement, rural roads and rural electrification.

Table 58

Outlays for National Programme for Minimum Needs

(Rs crores)

Item	*Expenditure in the fourth Plan*	*Outlay in the fifth Plan*	*Remarks*
Elementary Education	225 88	451.51*	*This is in addition to Rs 249.52
Rural Health	22.79	291.47	crores for support programmes under Elementary Education.
Nutrition	1.38	580.20@	@ Including CARE assistance in the form of food mainly for mid-day meal programme.
Rural Water Supply	165 11	554.00	
Rural Roads	206 28	498 00	**This is in addition to Rs 400 crores under Rural Electrification Corporation
House sites for landless	4 46	107.95	
Slum Improvement	6.91	94.63	
Rural Electrification	427.11	276.03**	
Total	1059 92	2203.79@@	@@ Excluding outlays for Union Territor

Annual Plan 1974-75

The outlay for the first year of the fifth plan, 1974-75 has been fixed at Rs. 4,833.68 crores.

For the year 1974-75 the total outlay, taking the centre and states represents an increase varying from Rs. 400 crores according to the Finance ministry to Rs. 562 crores according to the Planning Commission, over the original provision made for 1973-74. The Planning Commission has stated that in the State plans for the first year of the fifth Plan, higher priority has been accorded to power, irrigation and agriculture. The increase over the provisions made last year are Rs. 141 crores for power, Rs· 95 crores for irrigation and Rs. 27 crores for agricultural and allied programmes.

The central assistance to State for the 1974-75 Plan is as follows: (in crores of rupees)

Andhra Pradesh 48.75: Assam 40.04: Bihar 68.68: Gujarat 32.17: Haryana 15.99: Himachal Pradesh 22.35: Jammu and Kashmir 30 21: Karnataka 35.40: Kerala 35.72: Madhya Pradesh 53.32: Maharashtra 49.98: Manipur 7 52: Meghalaya 8.85: Nagaland 7.12: Orissa 32.70: Punjab 20 64: Rajasthan 46.06: Tamil Nadu 41.15: Tripura 7.61: Uttar Pradesh 106.89: West Bengal 44.91: Unallocated for Hills and Tribal Areas 25.000, Total Rs· 780 15 crores. According to tentative arrangements, the central assistance is expected to be generally in the form of 70 per cent loan and 30 per cent grant except for hill areas for which a larger grant assistance will be available as in the fourth Plan.

PUBLIC FINANCE

CENTRAL BUDGET

Federal Structure

The Indian financial system has gradually evolved on federal lines. Before 1871, the Central Government had complete control over provincial revenues and expenditure All the revenues were credited to the Central Government and the Central Government made fixed grants to the provinces to meet their expenses. Under the Government of India Act 1919, a complete separation between Central and Provincial heads of revenue was made. Income tax and Central stamps were assigned to the Centre, and Excise, Judicial stamps, Land Revenue and Irrigation were made over to the Provinces. Under the Government of India Act 1935, Income tax (excepting Agricultural Income tax) was to be collected by the Centre and a percentage of the net proceeds was to be distributed among the Provinces.

The allocation of revenues between the Centre and the States has always been a contentious subject. Before the Indian Constitution came into force, this question was settled by special commissions appointed from time to time Constitution Article 280 empowers the President to appoint periodic Finance Commissions for this purpose every five years or earlier as the President deems fit. Six Finance Commissions have been appointed since 1951, the last in 1972

Sources of Revenue– Centre and States

The main sources of Central revenue are customs duties, excise duties levied by the Central Government, corporation tax and income tax, wealth tax and profits transferred from the Reserve Bank and Railways and contributions made by the Posts and Telegraphs. The main sources of revenue for the States are land revenue, sales tax, agricultural income tax, state excise duties, registration and stamp duties The share of Central taxes and duties and grants-in aid received from the Centre constitute a substantial item in State Finance.

The devolution of resources from the Centre to the States is perhaps the most important feature of public finance in India. The States receive not only their share of Central taxes and duties, statutory grants and grants in-aid, but also loans for various development schemes and for rehabilitation purposes.

Growth of Revenues

The revenues of the government of India, have been steadily going up year by year. In 1950-51, the total net revenue* of the union government stood at 405.86 crores. In 1973-74 Revised estimates, it had passed the 5000 crore mark at Rs. 5102.95 crores. In 1974-75 the budget estimates a net revenue of Rs. 5640 86 crores for the Union government.

Tax and Non-tax Revenues

Non-tax revenues accrue, from interest receipts, currency and Mint, irrigation, electricity, public works, administrative services, and social and developmental services. The share of the non-tax revenue in the total revenues of the government has progressively increased from 1950-51. In that year, out of the aggregate revenue of Rs 405 86 crores, non-tax sources accounted for 12 per cent and tax sources for the rest, namely 88 per cent. In 1974-75, the total revenue is estimated at Rs. 5640.86 crores, out of which non-tax sources will account for Rs. 1340.40 crores or 23 8 per cent roughly, while taxes will bring in 4,300.35 crores or approximately 76.2 per cent of the total revenue.

Direct and Indirect Taxes

Direct taxes include taxes on income and expenditure and those on property and capital transactions. Indirect taxes cover taxes on commodity *and Excise* levies, and Customs duties.

The share of indirect taxes in the total tax revenue of the government has been steadily on the increase, since 1950-51. In 1950-51, when the total net tax revenue of the Central government stood at Rs. 357 crores, indirect taxes accounted for Rs. 227.49 crores or 63.7 per cent, while direct taxes totalling Rs 129.51 crores formed 36.3 per cent of the total tax revenue. In the 1974-75 budget, of the estimated total of 4300.45 crores, direct taxes fetching Rs. 935 crores will form 21 per cent while indirect taxes will account for Rs. 3365.44 crores or 78·3 per cent of the total.

Net Revenue of the Union government means the revenue going to the centre after deducting the States' share. In 1973-74 the States' share came to Rs. 11,73.57 crores. In 74-75 it is estimated at Rs. 1173.29 crores.

The Budget

Annual Financial Statement

Under Art. 112 of the Constitution a statement of estimated receipts and expenditure of the Government of India has to be laid before the Parliament for every financial year—1st April to 31st March. This annual financial statement is known as Budget. The budget shows receipts and payments of the Government under three heads— (1) Consolidated Fund (2) Contingency Fund (3) Public Account.

Consolidated Fund includes all revenues and loans received by the Government. All expenditure from this account have to be sanctioned by Parliament.

Contingency Fund is a sum (at present Rs. 30 crores) placed at the disposal of the President to meet unforeseen expenditure Amounts spent from this Fund, can be re-imbursed from the Consolidated Fund with the sanction of the Parliament.

Public Accounts represent all receipts and payments, which are in the nature of a deposit account with the Government like Provident Funds, Small Savings collections etc. No parliamentary sanction is necessary for their disbursement.

Charged Accounts. Under the Constitution certain payments like the emoluments to the President or Supreme Court Judges are charged on the Consolidated Account Expenses on this account do not require Parliamentary sanction as such, but are nevertheless shown separately in the Budget.

Appropriation Act. The estimates of expenditure are placed before the Lok Sabha in the form of a Demand for Grants. Ordinarily a separate demand is made for each Ministry. The Appropriation Act passed by Parliament, authorises withdrawal of the estimated expenditure from the Consolidated Fund.

Finance Act embodies the tax proposals of the budget which are passed by Parliament each year.

The Economic Survey, which provides the background for the budget proposals and an assessment of the prospects of the budget year is laid before the Parliament prior to the introduction of the budget.

The Budget objectives

In presenting the 1973-74 budget, Finance Minister Chavan said, "the primary role of budget to-day is to be a major instrument for the realisation of our basic social and economic objectives". Since 1970 71 our budgets have been drawn up with the object of achieving social objectives, like accelerated economic growth, removal of poverty, attainment of economic equality, self-reliance or price stability. No budget has been able to achieve any or part of these objectives, so that they have remained mere socialistic embellishments to catch the public eye.

Table 59

BUDGET 1974—75

Revenue Receipts

	1973-74 Budget	*1973-74 Revised*	*1974-75 Budget*
Tax Revenue	5,111	5,052	5,287 +212*
Less—States' Share of Tax Revenue	1,178	1,174	1,172 +26*
Net—Centre's Tax Revenue	3,933	3,878	4,115 +186*
Non-Tax Revenue	1,146	1,224	1,340
Total—Centre's Revenue	5,079	5,102	5,455 +186*

Capital Receipts

	1973-74 Budget	*1973-74 Revised*	*1974-75 Budget*
Market Loans(Net)	326	472	498
External Loans (Net)	400	470	552
Loan Repayments	1,145	1,385	1,080
Other Receipts	589	359	969
Total Capital Receipts	2,460	2,686	3,099

Revenue Disbursements

(In crores of rupees)

	1973-74 Budget	*1973-74 Revised*	*1974-75 Budget*
General Services	1,235	1,301	1,566
Defence Services	1,405	1,551	1,680
Social and Community Services	432	324	451
Economic Services	706	660	604
Grants-in-aid to States etc.	1,000	1,118	11,07
Total Revenue Disbursements	4,778	4,954	5,408
Revenue Surplus	+301	+148	+47 +186*

Capital Disbursements

	1973-74 Budget	*1973-74 Revised*	*1974-75 Budget*
General Services	30	21	25
Defence Services	195	202	235
Social and Community Services	43	42	64
Economic Services	607	669	899
Loans and Advances	1,973	2,550	2,234

Total—Capital Disbursements	2,848	3,484	3,457
Deficit on Capital Account	—388	—798	—358 --311
Overall Deficit	--87	—550	+186*

---

† Effect of Budget Proposals.

Table 60

Resources transferred to State and Union Territory Governments

(Rs. crores)

	1973-74 Budget	*1973-74 Revised*	*1974-75 (B.E.)*
A. States' Share of Taxes & Duties	1,178	1,174	1,198
Incom tax	516	532	491
Union excise duties	653	631	698
Estate duty	9	11	9
B. Statutory and Other Transfers	566	960†	632†
Grants	208	312	528
Loans	358	648	104
C. Assistance for Development outside Plan	420	449	372
Grants	92	81	70
Loans	328	368	302
D. Assistance for State and Union Plans	864	777	813†
Grants	259	253	247
Loans	605	524	566
E. Assistance for Central & Centrally Sponsored Plan Schemes	373	402	270
Grants	322	350	202
Loans	51	52	68
F. Total Grants and Loans (B+C+D+E)	2,223	2,588	2,087
Grants	881	996	1,047
Loans	1,342	1,592	1,040
G. Less: Repayment of loans and advances	850	900	520
Net resources transferred to State and Union Territory Governments (A+F—G)	2,551	2,862	2,765

Note: The Union Territories included are those with Legislatures.

† In addition, Rs. 58 crores are provided for Union Territories without Legislatures and Rs. 40 crores for Rural Electrification Corporation; thus, the total provision in the Budget for State and Union Territory Plans will amount to Rs. 911 crores.

The most important feature of the 1974 75 budget is the reduction in direct taxation. The Wanchoo committee had reported to the government, as far back as Dec. 1971, that the rate of direct taxation has to be brought down. The Committee seemed to think that the main cause of tax evasion is the exorbitant rate of taxation. "When the marginal rate of taxation is as high as 97.75 per cent, the net profit on concealment can be as much as 4,300 per cent of the after-tax income. The implication of 97.75 per cent income tax is that it is more profitable at a certain level of income to evade tax on Rs. 30 than to earn honestly Rs 1,000. We will not be surprised that placed in such a situation, it would be difficult for a person to resist the temptation to evade taxes".

Though the Finance Minister fought shy of this recommendation in '72-73 budgets, he has at last mustered courage enough to reduce the highest marginal rate of taxation from 97.75 per cent to 70 per cent. With a surcharge of 10 per cent on income tax, the highest marginal rate of tax would be 77 per cent as against 75 per cent recommended by the Wanchoo Committee As suggested by the Wanchoo Committee, the tax rates at the middle and lower levels of incomes have also been reduced Also, the exemption limit has been raised from Rs. 5,000 to Rs. 6,000.

Deficit Budgeting

Our budgets, for some years now, have been deficit budgets. That is to say, the budgetory expenses remained greater than the budgetory revenues. This was at first defended as a necessary consequence of developmental policies. In a few years, however, it was realised, that deficit budgets, only promoted inflation and did little else. In drafting the Vth Plan, the Planning Commission admonished the government to avoid deficit budgeting "in view of the excess liquidity in the economy and the abnormal rise in prices" But, we have been caught so tightly in the vicious grips of deficit financing, that Finance Minister Chavan was compelled to present another deficit budget for 1974-75.

A Budget deficit, originally estimated has a way of blowing itself up, so that when the year ends, it is many times better than the original estimates In 1973-74 we estimated a deficit of Rs. 87 crores, and ended up with Rs. 650 crores. The situation is no better in 1974-75. With an opening deficit of Rs. 125 crores, we may well close up again, with over Rs. 600 crores.

Springboard of Inflation

The danger of a budget deficit is, that the 'overall deficit' shown in the budget, is only a part of the deficit package and not the whole of it. The actual deficit of the government is seen in the Reserve Bank figures under the heading 'net bank credit to the government sector'.

The net bank credit to the government sector, consists of the following items (1) Budgetary deficit of the central government (2) Budgetary deficits of state budgets (3) Borrowings of the central and state governments from the Reserve Bank and the commercial banks. All these added together will come to a fantastic total.

Thus, the original deficit in the '73 '74 budget was only Rs 87 crores. This swelled up to Rs. 650 crores, in the Revised Estimates. The borrowings of the central and state governments for the year from the banking system came to around Rs. 533 crores. The Revised Estimates of the deficit and the borrowings of the central and state governments put together totalled Rs. 1183 crores for 1973 74.

The net bank credit to the government sector is important because it is the spring board of inflation. It increases Money Supply to that extent. Other factors like bank credit to the private sector, time deposits, add their own quota to the Money Supply. It has been calculated that for 1973-74 other factors like credit to the private sector, added about Rs. 366 crores to the money supply As a result of this, the money supply for the year ended Feb. 8, 1974, totalled Rs. 1519 crores. This represented a 17 per cent increase in money supply in 1973-74 (Also see National Economy Supra)

Supplementary Budget

The Supplementary Budget presented on July 31, has proposed new taxes that are estimated to yield Rs. 210 crores in full year, and Rs. 123 crores in 1974-75, for the Centre. The States will receive Rs. 22 crores in a full year and Rs. 13 crores during the current year. The overall burden on the tax-payer will be of the order of Rs. 232 crores in a full year. Direct taxes are estimated at Rs. 65 crores including the capital gains tax increases. Nearly Rs. 167 crores will be netted through indirect taxes. The most interesting proposal regarding the direct taxes is the levy of a *tax on the gross amount of interest received* by a scheduled bank on loans and advances made in India. This levy will be at the rate of 7 per cent of the gross amount of interest earned by the banks.

The statement of supplementary demands shows an additional expenditure of Rs. 352.70 crores comprising Rs. 125 crores on account of food subsidy, Rs. 75 crores on defence services and Rs. 152.10 crores for additional investments in the core sector. Besides, Rs. 112 crores have been provided for payment of additional dearness allowance to the Central Government employees. This adds to a total additional expenditure of Rs. 464.70 crores, and even taking into account the additional resources of Rs. 123 crores to be raised through the new taxation and economics of Rs. 200 crores proposed to be effected there will still be an uncovered gap of Rs. 267 crores. The Finance Minister hopes that the public sector will come to his rescue and he may not be wrong there, since the State Trading Corporation alone expects to reap a windfall profit of Rs. 150 crores through its exports of sugar and high value items. Details of the economics of Rs 200 crores to be effected in the current year are not available

Budgetary Deficit

In introducing the main budget in Feb. 1974 Finance Minister Chavan said "we are deeply concerned about the deleterious effects of deficit financing. But no Government can overlook its obligation to alleviate the hardships and sufferings of large section of the people. It is this obligation that has rendered a larger deficit inescapable"

National income

"The provisional estimates of national income prepared by the Central Statistical Organisation indicate for 1972-73 a rate of growth of only 0.4 per cent (at 1960-61 price) showing a further decline from the low of 1.7 per cent registered in 1971-72. Though official estimates for 1973-74 are not yet available, there is little doubt that in this year a substantial improvement in the growth rate of national income was achieved. In Government of India's Economic Survey for 1973-74, prepared in February 1974, for instance, national income in real terms (at 1960-61 prices) is estimated to have recorded rise of about 6 per cent. While the increase might well have been of this order, it should be noted that the improvement was in relation to a year of very poor performance".

If by 'sufferings of large sections of people' the Finance Minister meant rising prices, his budget has done nothing to alleviate it. Prices went on rising. The Finance Minister was quite candid on this point when he admitted. "This continuing deterioration on the price front has been a source of the greatest concern to the government". He also said "It is self-evident that controlling inflation to-day is the single most important task facing the country".

A spokesman of the Finance Ministry explained that the supplementary budget was introduced not to bring down prices but to contain the deficit at the original figure of Rs. 126 crores, so that "further upward pressure on prices did not build up". The spokesman has not given any indication of what the actual deficit is or would be at the end of the year. If history is any guide, the budgetary deficit at the end of the year, would be substantial enough, to cause misgivings in the minds of the people, as to the credibility of Finance Ministry Spokesmen.

STATE BUDGETS

Compared to 1973–74, the budgetary position of state governments has improved greatly according to Annual Report of the Reserve Bank. The state budgets show an overall surplus of Rs. 25 crores for 1974–75 as against a deficit of Rs. 211 crores in '73–74. This improvement in the position of the states has resulted from the re-scheduling of debts and larger grants from the centre in terms of the Sixth Finance Commission Report. Besides, the states have raised additional resources, to the tune of about Rs 162 crores through fresh taxation measures.

Table 61

Overall Budgetary Position of States

(Amounts in Rupees Crores)

	1972-73 (Accounts)	1973-74 (B. E.)		1973-74 (R. E.		1974-75 (B. E.)$	
	Amount	*Amount*	*Per cent variation over the previous year*	*Amount*	*Per cent variation over the previous year*	*Amount*	*Per cent variation over the previous year*
I. Aggregate Receipts (A+B)	7794 (7373)	7715 (7797)	—1.0 [+4.6] (—) [(+5.8)]	8040	+3.2 (+9.0)	7920 (8108)	—1.5 (+0.8)
A. Revenue Receipts (i+ii)	4912	5383 (5465)	+9.6 (11.3)	5499	+12.0	5866 (6054)	+6.7 (+10.1)
(i) States' Own Revenue Receipts	2925	3125 (3165)	+6.8 (+8.2)	3321	+13.5	3592 (3754)	+8.2 (+13.0)
Of which: Tax Receipts	1928	2016 (2055)	+4.6 (+6.6)	2197	+14.0	2371 (2502)	+7.9 (+13.9)
(ii) Resources Transferred from Centre (a+b)	1987	2258 (2300)	+13.6 (+15.8)	2178	+9.6	2274 (2300)	+4.4 (+5.6)
(a) shared taxes	1061	1146 (1188)	+8.0 (+12.0)	1175	+10.7	1196 (1222)	+1.8 (+4.0)
(b) Grants from the Centre	926	1112	+20.1	1003	+8.3	1078	+7.5
B Capital Receipts (i+ii)	2882 (2461)	2332	—19.1 (—5.2)	2541	—11.8 (+3.3)	2054	—19.2
(i) States' Own Capital Receipts	932@	1030*@	+10.5	949@	+1.8	1020	+7.5
Of which: Market Borrowings (Gross)	216£	194£*	—10.2	167£	—22.7	265	+58.7

(ii) Loans from the Centre (Gross)	1950	1302	—33.2	1592	—18.4	1034	—35.1
	(1529)		(—14.8)		(+4.1)		
II. Aggregate Disbursements	7374	7999	+8.5	8251	+11.9	8083	—2 0
Of which:							
(a) Developmental Outlay (i+ii)	4068	4689	+15.3	4760	+17.0	4868	+2.3
(i) Social and Community Services	2160	2455	+13.7	2500	+15 7	2442	—2.3
Of which:							
Expenditure on Natural Calamities	296	272	—8.1	375	+26.7	71	—81.1
(ii) Economic Services	1908	2234	+17.1	2260	+18.4	2426	+7.3
(b) Non-Developmental Outlay	1604	1863	+16.1	1878	+17.1	1909	+1.7
(c) Repayment of Loans to the Centre	690	779	+12.9	921	+33.5	511	—44.5
(d) Loans and Advances to Third Parties	721	558	—22.6	609	—15.5	574	—5.7
(e) Repayment of Market Loans	82£	1£	—98.8	5£	—93.9	100	+1900.0
III. Overall Surplus (+) or Deficit (—) (I—II)	+420	—284		—211		—163	
	(—1)	(—202)				(+25)@@	

Note:

1. Figures given here are not comparable with those given in earlier Annual Reports due to changes in budgetary classification

2. In the case of Gujarat, Haryana and Tamil Nadu the data given for 1972-73 (Accounts) and 1973-74 (B. E. & R. E.) on the basis of old classification have been broadly converted into revised classification.

3. Figures in brackets for 1972-73 (Accounts) relating to aggregate receipts, capital receipts and loans from the Centre exclude Rs. 421 crores of net ways and means assistance received from the Centre to clear States' outstanding overdrafts with the Reserve Bank of India. The overall surplus/deficit has been adjusted accordingly

4. Figures in brackets for 1973-74 (B. E.) are after taking into account estimated yield from budget proposals by the States (Rs. 40 crores) and their share in Centre's additional taxation (Rs. 42 crores).

5. Figures in brackets for 1974-75 (B. E.) are after taking into account estimated yield from budget proposals by the States (Rs. 162 crores) and their share in Centre's additional taxation (Rs. 26 crores).

6. Figures in square bracket indicate percentage growth rate over the bracketed figures in 1972-73 (Accounts).

$ Figures for Manipur and Kerala are provisional.

@ In the case of Gujarat the entire amounts for Suspense (net) and Floating Debt (net) are excluded instead of Cash Balance Investment Account (net) and Ways and Means Advances and Overdrafts from R. B. I. (net).

* To ensure uniformity in the presentation of data, market borrowings of Rs. 3 crores by Jammu and Kashmir Electricity Board are excluded.

£ In the case of Gujarat and Tamil Nadu entire permanent debt has been taken into account.

@@ This surplus will go up to Rs. 38 crores if the States' share (Rs. 13 crores) in Centre's additional tax measures proposed on July 31, 1974 is taken into account.

Source R. B. I.

PUBLIC DEBTS

Public Debts

The Public debt of India has grown enormously in recent years. It shows a compound rate of growth of approximately 10 per cent per annum during the period 1950–51 to 1972–73. The outstanding public debt at the end of 1972-73 is expected to rise to Rs. 16,084 crores, of which, the internal debt (at Rs. 8,756 crores) forms 54.4 per cent, and the external debt (at Rs. 7,328 crores) represents 45.6 per cent.

Taking into account the other debt liabilities of the Centre, like Small Savings, State Provident Funds, PL 480 deposits and other unfunded debts, the aggregate liabilities of the Government of India are estimated to rise to Rs. 22,127 crores at the end of March 1973.

Internal Debt

The Reserve Bank, on its own account, is the largest single holder of the government debt. It held 28 per cent of the debt on March 31, 1971 (the latest date for which data are available). The commercial and co-operative banks came next with 27 per cent. The provident fund accounted for 19.2 per cent. The insurance companies owned 15 per cent and state governments 4.9 per cent. The share of individuals (residents) was nominal at 0.9 per cent. The non-residents and others held a meagre 1.7 per cent. The shares of other categories are negligible.

Thus the Reserve Bank (own account), provident funds, commercial and co-operative banks, insurance companies and state governments held 98 per cent of the central government's internal debt.

Public Debts and Inflation

When the Reserve Bank purchases government securities on its own account, the money supply in the country expands. The National Council of Applied Economic Research explains the process thus. "Taking the banking sector in isolation, an increase in money supply is caused by increase in monetary assets minus increase in non-monetary liabilities. If monetary assets increase by Rs. 100 and the non-monetary liabilities also go up by Rs. 100, the effect on the money supply is nil. On the other hand, if the former go up by Rs. 100 while the latter decline by Rs. 100, the money supply will expand by Rs. 200. In terms of monetary analysis, deficit financing, as officially defined, causes an increase money in supply because through the issuance of adhoc treasury bills, the monetary (or financial) assets of the Reserve Bank of India go up while reduction in the cash balances of the government causes a decline in the non-monetary liabilities.

"For the same reason, when the Reserve Bank pays dated rupee securities of the government, its assets go up. If the same amount is credited to the cash balances of the government, the non-monetary liabilities of the bank will rise by the same amount and the immediate effect on the money supply will be nil. But when the government spends the money, the cash balances go down, causing reductions in the non-monetary liabilities of the Reserve Bank. Thus, the money supply will increase by the amount of government securities purchased by the Reserve Bank".

The interest burden of the government of India, has increased by more than 8 times between 1951 and 1972. The proportion of interest charges to national income has gone up from 0.81 per cent in 1951 to 1.88 per cent in 1972. Interest charges paid out are clearly unproductive and therefore indirectly increase the inflationary trend.

Apart from this, more taxes have to be levied as the interest burden goes on increasing from year to year. Taxes influence not only the level of production but also the distribution pattern in the economy.

As regards foreign debts, which now forms as much as 45.6 per cent, of the total and requires as much as Rs. 182 crores (1972-73) as service charges, constitutes not only a real reduction from national income but also renders the balance of payments position more vulnerable.*

* *Source: Economic Times*

BANKING & CREDIT

(1) INDIGENOUS BANKING

Indian Banking

THE Indian Banking system is made up of two disparate elements, modern banks and indigenous banking house. Though actual statistics relating to the indigenous houses are not available, there is no doubt that they play a very crucial role in credit.

Indigenous Bankers are concentrated in cities and towns and other trading centres, from where they contact the rural population scattered around. Many of them indulge in trading and industry in addition to banking. They also act as middle men in the distribution of commodities. They assist in the movement of crops to distant markets. Thus, they play an important role in the financial system of the country by providing a link between city markets and the vast rural masses. These bankers, known by different names in different parts of India, may be collectively designated as *Multanis* for purposes of easy reference.

As credit agencies, the Multanis perform a necessary economic function by financing farmers, small entrepreneurs and retail traders, who do not maintain accounts with commercial banks. In spite of their higher money rates, they attract a large clientele in cities and towns.

The reasons for this are many: (i) There are very few formalities to be gone through with these bankers—no complicated documents to be signed and countersigned and no waiting at the counters (ii) Ready money is available always and no technicalities interfere with payment in time. (iii) The clients have full confidence in the integrity and the promises of their bankers and can rely on them to pull them through in emergencies. This confidence, in turn, engenders a sense of obligation in the clients to keep their part of the bargain.

"It is a unique and classic feature of indigenous banking, that no one has ever heard of a *hundi* not being met on the due date by an indigenous banker. The "no recourse" language of the Negotiable Instruments Act has no place in the indigenous banking system. The experience of commercial banks themselves, with *shroffs* and *multanis* is a tribute to the honesty and integrity of the indigenous bankers. Bad debt records are practically non-existent in their case".

Commercial Banks and Multanis. The bigger commercial banks were the financiers of Multanis, whose independent resources were often quite insufficient for their business. They used to draw hundis or Bills of Exchange, on the commercial banks, in order to finance their own customers. When the 14 major banks were nationalised their (the banks) credit policy was re-aligned in favour of the small entrepreneur. This meant that the commercial banks became competitors of the Multanis. They reduced their advances to Multanis in Bombay from Rs. 26.75 crores in Nov. 1970 to 12.39 crores in June 1971.

This policy did not last long. They switched back to the old policy of financing Multains. The banking circles justify their change of policy on the ground that advances to the small sector earn barely 10 per cent, yield no consequential foreign exchange business or business in the shape of guarantees. Besides, the small men are averse to what is called 'banking discipline' and it is risky, advancing to them. The indigenous bankers are a safe bet. They have never been known to fail.

The Multanis charge their customers around 15 per cent depending on the rates at which they get accommodation in the commercial banks This rate, which remained more or less steady at 10.5 per cent per annum was increased to 12 per cent in Feb. 1973, by the Central Bank of India, the largest lender to the Multanis. This would mean that the Multani rates will be increased proportionately.*

Money lenders are active mainly in the villages, where they do a lot of financing, especially among the agricultural population. But no statistics are available about their advances They are a much maligned community. No doubt, they are usurious and many of them fleece their customers mercilessly. But they serve a useful purpose. They are of timely help to villagers who are in need of funds.

---

* See foot note in p. 330.

Money lenders and indigenous bankers. Money-lenders are often confused with indigenous bankers. In fact the distinction between the two, is often a distinction without a difference. However, one important point of comparison is in the matter of hundis or bills of exchange. All bankers deal in hundis. Money-lenders, as such, do not deal in them. Other points of difference are the following. Indigenous bankers finance productive lines like trade or industry while money-lenders finance consumption. The bankers study the market and keep track of business trends—supply, demand and prices. The money-lenders are not concerned with trade trends, and, in nine cases out of ten, they are incompetent to gauge them. They are only bothered about the return of their loans with interest.

Apart from these rather nice but vital distinctions the differences between bankers and money-lenders are matters of degree and not of kind For example, both advance money partly with security and partly without security. But bankers more often lend money without security and money-lenders more often with security. The banker's evaluation of his client's credit-worthiness is most refined and business-like, while money-lenders permit themselves a big leeway in the matter. In other words, money-lenders take greater risks and to cover their risks, they charge higher rates of interest than the bankers —say 18 to 24 per cent, as against the bankers' 15 per cent or thereabouts.*

Integration of indigenous bankers. As far back as 1931, the Central Banking Enquiry Committee had suggested that the indigenous bankers should be brought into the fold of organised banking system and integrated with it. The Reserve Bank in 1935 laid down three conditions for admitting the indigenous bankers into the national banking system. They were (i) that indigenous bankers should give up all non-banking business (ii) they must maintain proper books of account and (iii) they must submit themselves to Reserve Bank inspection and comply with the directives of the Reserve Bank. These terms apparently did not find favour with the indigenous bankers, for few came forward to accept them. No further attempts appear to have been made in this direction with the result that organised modern banking and the age-old indigenous banking still remain disparate systems

(2) COMMERCIAL BANKING

History

The precursors of the modern banking companies in India, were the European agency houses in Calcutta and Bombay. These agency houses carried on trade and banking simultaneously. Most of them came to grief between 1829 and 1832 owing to their participation in speculative ventures. Firms like Grindlays however survived and continued to carry on trade and banking together. The banking business of these agency houses was progressively taken over Presidency Banks. The Presidency Bank of Bombay established in 1804 was liquidated in 1868, owing to heavy losses in speculation. It was however replaced by a second Bank of Bombay in 1868. The two other Presidency Banks opened were the Bank of Bengal (1806) and the Bank of Madras (1843). These banks acted as bankers to the East India Company at Calcutta, Bombay and Madras. The three Presidency Banks were amalgamated in 1920 to become the Imperial Bank of India.

In 1860, the Principle of joint-stock banking with limited liability was recognised by the Government of India. This was the signal for new banking ventures in India. The Bank of Upper India was formed in 1863 and the Allahabad Bank in 1865. By 1894 there were 14 joint-stock banks in India, most of them run by Europeans.

In 1894, the Punjab National Bank, a purely Indian concern, came into being. Other banks followed. Some new banks like the Bank of Burma and the Indian Specie Bank, which were established mainly for foreign exchange business did not survive long. But many others survived-the Bank of India, established in 1906, the Bank of Baroda (1908) and the Central Bank of India (1911). Close on the heels of these big banks, various smaller banks were started in different parts of India. Many of these smaller banks died during the First World War.

---

* The interest rates of money lenders and indigenous bankers, given here, are no longer relevant. The Reserve Bank has directed the commercial banks to charge prohibitive interest rates, so as to restrict credit. The Commercial banks are therefore charging 20 to 24 per cent interest, thus outdoing the Multanis and money-lenders.

With the end of the War, India witnessed a new spate of banking ventures. The great majority of these new banks were wiped out during the great depression of the thirties. In 1938, the Travancore National and Quilon Bank became the victim of a political vendetta and was compulsorily liquidated. This started a chain reaction all over India leading to the closure of as many as 64 banks in 1938-39.

Indian joint-stock banking has thereafter progressed without major mishaps. In 1955, the Imperial Bank of India was nationalised and re-named the State Bank of India. In 1959-60, the State Bank gathered within its fold seven provincial banks, which were originally started in the Princely States of India. In 1960, the State Bank emerged as the colossus of Indian Banking, with a net work of 2,465 branches all over India.

With the successful absorption of many smaller banks by the State Bank of India, a movement was set afoot in political circles for the total nationalisation of banking. There was much to be said against the big commercial banks. They were concentrated in cities and major towns and catered only to big trading and industrial houses. They had no branches in the villages, where the majority of the Indian population lived. They paid no attention to small industries. In point of fact, agricultural advances of the commercial banks fell from a 2.3 per cent of their total credit in 1951 to a mere 0.2 per cent in 1966.

Much of the responsibility for this neglect of rural credit rests on the Reserve Bank of India, whose policy guidelines virtually kept rural credit, out of bounds for commercial banks.

Social control of Banks. The idea of a social control of banks was a compromise worked out at the Faridabad session of the Indian National Congress in April 1968, between the out-and-out champions of nationalisation of banking and the conservative section advocating a go-slow policy. Social control of banks was given effect to by legislation on February 1, 1969. The object of the legislation generally was to bring in socialisation of credit without nationalisation of banks. This involved the prevention of the exclusive use of bank credit by big business houses and a wider dispersal of credit, so as to direct its flow to priority areas and make it a live instrument of development.

It must be said to the credit of the commercial banks that they acted up to the ideas of social control, long before it was passed into legislation. They had reconstituted their Boards of Management and re-aligned their credit schemes.

Nationalisation of Banks

Despite all the enthusiasm evinced by the banking community to implement the objectives of social control, the idea was abandoned overnight, as it were, and 14 leading banks of the country were nationalised by a Presidential Ordinance on July 19, 1969. The ordinance became law by the *Banking Companies (Acquisition and Transfer of Undertaking) Act, 1969*. This was declared illegal by the Supreme Court on February 10, 1970. On February 14, 1970, the President issued a validating ordinance, re nationalising the 14 banks with retrospective effect from July 19, 1969. This ordinance rectified the irregularities pointed out by the Supreme Court and was enacted into law as the *Banking Companies (Acquisition and Transfer of Undertaking) Act, 1970*.

A Political move

The nationalisation of these banks, was "a political decision and a political victory." Having regard to the fact that the social control of banks as provided in the *Banking Laws (Amendment) Act of 1968* was working quite satisfactorily, there was no economic justification or necessity for nationalisation.

The Leading Commercial Banks, on the eve of nationalisation, numbered fourteen, the oldest of them being the Allahabad Bank and the biggest, the Central Bank of India

Basic Data as on Dec. 31, 1968

Table 62

Bank	*Year of establishment*	*Number of offices*	*Deposits and other accounts (Rs. crores)*	*Bills discounted and purchased (Rs. crores)*	*Loans and advances (Rs. crores)*	*Bank credit (Rs. crores)*	*Credit as per cent of deposits.*
Central Bank of India	1911	504	433	55	241	296	68.4
Bank of India	1906	250	395	34	219	253	64.1
Punjab National Bank	1894	544	356	34	175	209	58.7
Bank of Baroda	1908	333	314	30	166	196	62.4
United Commercial Bank	1943	223	241	39	105	144	59·8
Canara Bank	1906	302	146	23	74	97	66.4
United Bank of India	1950	178	144	14	86	100	69.4
Dena Bank	1938	214	122	15	59	74	60.7
Union Bank of India	1919	213	115	18	51	69	60.0
Allahabad Bank	1865	128	113	7	63	70	61.9
Syndicate Bank	1925	254	112	12	59	71	63.4
Indian overseas Bank	1936	188	93	24	34	58	62.4
Indian Bank	1907	190	85	14	43	57	67.1
Bank of Maharashtra	1935	140	73	4	46	50	68.6
Total		3761	2742	323	1421	1744	63.5

1969–1974

Banking Trends

Since the nationalisation of 14 major banks on July 19, 1969, Commercial Banking on the whole prospered. Taking the year (July 1973 to June 28, 1974) as a whole, total bank credit registered an expansion of Rs. 1321 crores (20.6 per cent) as against Rs. 932 crores (17 0 per cent) in the corresponding period of last year. In contrast, growth rate in aggregate deposits, which had slided down from 22.4 percent (Rs 1393 crores) in 1971-72 to 20 4 per cent (Rs. 1556 crores) in 1972–73 declined further to 16.0 per cent (Rs. 1470 crores) in 1973-74.

(1) The distribution of business between the public sector banks and the private sector banks, showed little radical change in the five year period 1969-'74. At the time of nationalisation, the public sector banks (the nationalised banks, the State Bank of India and its 7 Subsidiaries) together accounted for 83 per cent of aggregate deposits and 84 per cent of total credit. At the end of June 1974, these proportions were respectively 84 per cent and 85 per cent. The share of the public sector banks in total bank offices also remained unchanged at 82 per cent

(2) **Branch Offices.** At the time of the nationalisation of the major banks, there were 8262 commercial bank offices (June 30, 1969) in the country. By June 1974 this figure had more than doubled to 16,936. The significance of this dimensional change is better seen in the location of the new offices; 53. 6 percent of these were opened in centres that had no banking facilities or were inadequately served by banks. Nearly 30 per cent of the new offices were located in the under-banked States of the central, eastern and north-eastern regions.

(3) **Deposits and Advances.** Deposits of scheduled commercial banks rose by Rs. 5989 crores in the period 1969 74, the quantum of aggregate deposits crossing the Rs. 10,000 crore level in early 1974.

Total advances and investments made by the scheduled commercial banks also more than doubled over the period 1969-74. Bank credit increased by Rs. 4134 crores to a level of Rs. 7733 crores at the end of June 1974. Total bank investments as on that date stood at Rs. 3395 crores while, five years earlier the figure was Rs. 1359 crores.

1973-74

New Offices

In 1973–74 (July to June) 1593 new offices were opened. As in the bulk of these new offices (1206 or 76 per cent) were opened by the public sector banks, the State Bank Group and nationalised banks between them shared 297 and 909 offices, respectively (Table 63).

Of the new offices opend in 1973-74, 547 (34.3 per cent) were in unbanked areas.

Table 63

Statewise Distribution of Bank Offices As At The End of June 1974

State/Union Territories	Number of offices as at the end of June 1974	Opened during 1973-74 (July-June)	Of which Unbanked Centres	Population per bank office (in thousands) as at the end of June 1974
Andhra Pradesh	1234	131	48	35
Assam	184	16	8	79
Bihar	672	79	36	84
Gujarat	1435	116	25	19
Haryana	390	52	17	26
Himachal Pradesh	159	26	17	22
Jammu and Kashmir	164	26	9	28
Karnataka	1621	143	59	18
Kerala	1163	89	37	18
Madhya Pradesh	820	80	28	51
Maharashtra	2005	140	19	25
Manipur	9	—	—	119
Meghalaya	18	1	1	56
Nagaland	7	1	—	74
Orissa	255	30	16	86
Punjab	869	97	57	16
Rajasthan	743	79	33	35
Tamil Nadu	1784	134	36	23
Tripura	18	4	2	86
Uttar Pradesh	1673	177	57	53
West Bengal	987	108	35	45
Union Territories				
Andaman & Nicobar Islands	5	1	1	23
Arunachal Pradesh	6	1	1	78
Chandigarh	44	3	1	6
Dadra & Nagar Haveli	4	—	—	19
Delhi	502	50	—	8
Goa, Daman & Diu	133	8	4	6
Lakshadweep	4	—	—	8
Mizoram	1	—	—	332
Pondicherry	26	1	—	18
Total	**16,936**	**1,593**	**547**	**32**

The problems faced by banks in promoting regional development were generally discussed. Specific requirements such as the need for banks to develop a coordinated approach to meet the different credit requirements of farmers were also indicated.

Branch Expansion

During the year 1973-74 (July-June), commercial banks opened 1593 offices in India as against 1756 and 1612 new offices opened in 1972-73 and in 1971-72, respectively. While it might appear that the tempo of branch expansion built up in the earlier years had not been sustained during 1973-74, it should be recognised that this was achieved despite the diminishing number of identified locations with basic infrastructural facilities as well as the intensifying man-power constraint. As in the past, the bulk of these new offices (1206 or 76 per cent) were opened by the public sector banks. The State Bank Group and nationalised banks between them shared 297 and 909 offices, respectively (Table 64).

Of the new offices opened in 1973-74, 547 (34 3 per cent) were in unbanked areas. The total number of commercial bank offices in the 9 under-banked States of Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Meghalaya, Orissa, Tripura, Uttar Pradesh and West Bengal stood at 4791 at the end of June 1974, as against 2088 offices at the end of June 1969 (Table 63). Thus, the share of these 9 States in the total number of offices in India increased from 25.3 per cent at the end of June 1969 to 28.3 per cent at the end of June 1974.

Bait for Buyers

A textile dealer in George Town, Madras announced a gift of half-a-kilo of Nellore raw rice for every purchase of Rs. 50. It has done the trick, the manager of the shop claimed. Just within a week of the offer, the shop has given away four bags (75 kgs, each) of rice, netting a sale of Rs 30,000. The fifth bag has just been opened, he said

In the light of a slump in the sales of silks, shops in the city are vying with one another in introducing new schemes, including heavy price reductions, to lure customers.

The Hindu-Nov, 9, 1974

Table 64

New Offices Opened By Commercial Banks During 1972–73 And 1973–74

Bank-Group	*New Offices opened by Commercial Banks*						*Bank Offices as on*		
	1972-73			*1973-74*					
	July-December 1972	*January-June 1973*	*July-June 1972-73*	*July-December 1973*	*January-June 1974*	*July-June 1973-74*	*June 30, 1969*	*June 30, 1973*	*June 30, 1974*
State Bank of India	130 (58)	112 (39)	292 (97)	135 (42)	73 (23)	208 (65)	1569	2867	3072
Subsidiaries of State Bank of India	127 (64)	54 (19)	181 (83)	64 (23)	25 (8)	89 (31)	893	1563	1652
Fourteen Nationalised Banks	618 (272)	308 (100)	926 (372)	697 (263)	212 (55)	909 (317)	4133	8109	9017
Other Scheduled Banks	194 (74)	155 (58)	349 (132)	250 (90)	128 (42)	378 (132)	1320	2580	2943
Foreign Banks	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	130	130	130
All Scheduled Commercial Banks	1119 (468)	629 (216)	1748 (684)	1146 (418)	438 (128)	1584 (545)	8045	15249	16814
Non-scheduled Commercial Banks	4 (3)	4 (3)	8 (6)	3 (1)	6 (1)	9 (2)	217	113	122
All Commercial Banks	1123 (471)	633 (219)	1756 (690)	1149 (419)	444 (129)	1593 (547)	8262	15362	16936

Note: Figures in brackets relate to number of offices opened at the un-banked centres.

Advance to Priority Sectors

At the end of September 1973, total advances to the priority sectors amounted to Rs. 1560 crores, which was more than 3 times the quantum of such advances in June 1969. Public sector banks provided 88 per cent of the total priority sector credit, the nationalised banks accounting for 57 per cent. Small-scale industries continued as the most prominent component of the priority sectors though their share in the total priority sector advances came down from 57 per cent in June 1969 to 48 per cent in September 1973. Direct finance to agriculture, which was negligible in 1969 accounted for nearly a quarter of the group total in September 1973. Advances to retail trade and small business and to transport operators constituted the balance.

Public Sector Banks

The public Sector Banks comprise, the State Bank of India, and its Seven subsidiaries and the 14 major banks nationalised in 1969-a total of 22 banks.

New banking policy. The main objective of the nationalisation of the leading Commercial banks was to initiate a new banking policy. The new policy aimed at re-channelling bank credit from big industries to small sectors or as R. K. Talwar, Chairman of the State Bank of India put it "to the small man in business, industry and agriculture" (Chairman's Speech, Annual Meeting. March 26, 1970) Such a re-direction of credit meant that the public sector banks, now 22 in number, including the nationalised banks had to fan out into the rural areas and open new branches.

Profits & Earnings

The Public Sector Banks showed a *profit* of Rs. 12.3 crores in 1973. This represents a marginal improvement of Rs 0.4 crores over the previous year. The total *earnings* of these banks came to Rs. 754 4 crores in 1973, an increase of 24.7 per cent over 1972

State Bank Group

The State Bank group showed a total earnings of Rs. 265.73 crores in 1973 which was 23 per cent higher than in 1972 and a profit of Rs. 4.66 crores, which represents an increase of 6.6 per cent over 1972.

Nationalised Banks

The 14 nationalised banks showed a total earnings of Rs. 488.66 crores in 1973 which is 25.7 per cent higher than 1972 and a profit of Rs 7.65 crores, which showed an increase of 1.3 per cent over the previous year.

Other Scheduled Banks- Working

The working results of 24 other Indian Scheduled Commercial Banks with deposits of over Rs. 10 crores each reveal a substantial improvement in their total earnings from Rs. 51 4 crores in 1972 to Rs. 69 7 crores in 1973. Total expenditure of these banks also rose from Rs. 50.1 crores in 1972 to Rs. 68 3 crores in 1973. Due to almost an equal rise in income and expenditure the profits of these banks recorded a nominal rise of Rs 4 lakhs in 1973. Transfers to statutory reserves out of profits declined from Rs. 53 lakhs in 1972 to Rs. 48 lakhs in 1973, while appropriations for other reserves rose from Rs. 21 lakhs to Rs. 27 lakhs. Dividend payments to shareholders were, however, maintained at Rs 33 lakhs i.e , at the same level as in 1972.

Foreign Banks

Total income of the foreign banks increased from Rs. 66.7 crores to Rs. 75.8 crores or by 13.6 per cent during 1973. Their total expenditure, however, increased by Rs. 8.8 crores to Rs. 71.6 crores—a rise of 13.9 per cent over the previous year. The profits of these banks showed an improvement from Rs 3.9 crores in 1972 to Rs. 4.2 crores in 1973. Among the foreign banks, First National City Bank earned the largest profits (Rs. 1.25 crores), followed by National & Grindlays Bank (Rs. 1.23 crores). All foreign banks together transferred to their head offices an amount of Rs. 3.21 crores in 1973, as compared to Rs. 3.91 crores in 1972.

CENTRAL BANKING

Reserve Bank of India

The Reserve Bank came into existence on April 1, 1935. The Bank was originally constituted as a share-holder's bank, but was later coverted into a State-owned bank by the Reserve Bank (Transfer to Public Ownership) Act, 1948 The Reserve Bank is divided into two distinct and separate departments, the issue department and the banking department. In addition to these, there is an agricultural credit department, which maintains an expert staff to study all questions of agricultural credit.

The primary functions of the Reserve Bank are: (1) Issue of paper currency, (2) Acting as bankers to Government including raising of public loans and management of public debt, (3) Controlling the activities of commercial banks, (4) Acting as a bank of accommodation and a lender in the last resort, (5) Maintenance of the external value of the rupee, (6) Provision of agricultural credit; (7) Collection and publication of monetary and financial information.

Joint stock banks are divided into two categories: (1) scheduled and (2) non scheduled. Scheduled Banks are those with a minimum capital and reserves of Rs. 5 lakhs. who having satisfied the Reserve Bank that their affairs are not being conducted in a manner detrimental to the interests of the depositors, are included in the Second Schedule to the Reserve Bank of India Act, 1934.

Non-Scheduled Banks are divided into four categories according to their capital: (1) A, with a capital of 5 lakhs and over; (2) B, with a capital between 1 and 5 lakhs; (3) C, with a capital between 50,000 and 1 lakh and (4) D, with a capital of less than 50,000.

Affiliates. The following institutions are affiliates of the Reserve Bank: (1) The Industrial Development Bank of India, (2) Deposits Insurance Corporation, (3) Agricultural Re-finance Corporation and (4) Unit Trust of India.

During 1962, amendments were made in the Reserve Bank of India Act, 1934 and the Banking Companies Act, 1949 with the purpose of strengthening the banking system and enabling Scheduled Banks to provide large credit to exporters for a long period

The amendments to the Reserve Bank of India Act require Scheduled Banks to maintain with the Reserve Bank an average daily balance of 3 per cent of their total demand and time liabilities in India as against the previous requirement of 5 per cent of demand and 2 per cent of time liabilities. The eash reserve ratio may now be varied between 3 per cent and 15 per cent.

In 1963, the Reserve Bank of India Act, 1934, the Banking Companies Act 1949 and the State Bank of India (Subsidiary Banks) Act of 1959 were amended by the *Banking Laws (Miscellaneous Provisions) Act, 1963*. The main objective of the amending Act was to provide for control and supervision of the Reserve Bank over non-banking institutions accepting deposits from the public or carrying on other business, which is allied to banking and to enhance and extend the powers of the Bank in relation to commercial banks in certain directions.

State Bank of India and Subsidiary Banks

The State Bank of India is the successor of the Imperial Bank of India which was established in 1921, by the amalgamation of the Presidency Banks of Bombay, Calcutta and Madras under the Imperial Bank of India Act, 1920. The Imperial Bank of India was originally formed as a private corporation, but had the privilege of being bankers to the Government. It also served as a central bank.

The establishment of the Reserve Bank of India in 1934 necessitated a change in the status of the Imperial Bank This was done by the Imperial Bank of India (Amendment) Act 1934. By this amendment, the Imperial Bank lost its status as a central bank but remained the sole agent of the Reserve Bank, where the latter had no offices of its own. At the same time, the Imperial Bank was given all freedom to function as a commercial bank and to enter into foreign exchange business.

The State Bank of India was formed in 1955 replacing the Imperial Bank of India. The purpose of the reconstitution was to convert the Imperial Bank as one strong integrated State - partnered commercial banking institution with branches all over the country so as to serve the needs of rural credit and generally to promote commercial banking on sound lines, throughout India. The State Bank functions as the sole agent of the Reserve Bank, wherever the former has branches and wherever the Reserve Bank has no banking departments.

Subsidiary banks. Under the *State Bank of India (Subsidiary Banks) Act of 1959* the Bank is empowered to take over as subsidiaries, provincial banks which were acting as bankers to State governments. The subsidiaries thus taken over are: (1) The State Bank of Hyderabad (1-10-1959), (2) State Bank of Bikaner and Jaipur (1-1-1960), (3) State Bank of Indore—formerly Bank of Indore Ltd (1-1-1960), (4) State Bank of Travancore—formerly Travancore Bank Ltd. (1-1-1960), (5) State Bank of Saurashtra (1-3-1960), (6) State Bank of Mysore-formerly Bank of Mysore Ltd. (1-3-1960), (7) State Bank of Patiala—formerly Bank of Patiala Ltd. (1-4-1960).

Role of the Reserve Bank. The Reserve Bank's role in the Indian economy is dual—promotional and regulatory. In recent years, its promotional role has been more predominant than the regulatory role. It has helped the Government in its development projects by raising loans at fairly low interest and by providing funds for deficit finacning. In developing the money market and the capital market, the Reserve Bank's promotional role has been exceptional. In its regulatory role, the Reserve Bank's monetary policy has been oriented to the national objective of economic growth with stability. Even though the conventional weapons of a central bank have only a limited operation in regulating the monetary system, the selective credit control and other directives issued by the Reserve Bank have had a salutary effect on the economy.

Bank Rate

The Bank rate was raised from 7percent to 9 per cent with effect from July 23,1974, an unprecedented increase of 2 per centage points at one time. At the same time the minimum lending rate to be charged by banks was raised from 11 per cent to 12.5 per cent except in the case of a few exempted categories. The minimum discount rates on bill finance for drawer's bills was increased from 9.5 per cent to 11 per cent per annum and the rate on drawees' bills from 11 per cent to 12.5 per cent. In the case of export credit also lending rate went up from 9 per cent to 10.5 per cent except in the case of exports on deferred payment terms, the rate on which remained unchanged at 7 percent. Food procurement credit was also made costlier from 9 per cent to 11 per cent for the Food Corporation of India and to 12 per cent for State Governments and their Agencies. While no change was made in the minimum net liquidity ration the maximum rate of interest chargeable was increased from 15 per cent to 18 per cent. Subsequently, Government imposed a tax of 7 per cent on the interest earned by banks on their advances, leaving it to the banks to make consequential adjustments in their lending rates. While all these measures operated through the rise in cost of credit, banks were asked to scrutinise top 50 accounts with a view to reducing the commercial sector's recourse to banks' credit and to ensuring its proper utilisation.

Interest on Deposits

The rates of interest on various types of deposits (except current deposits, which are interest-free) were revised in 1971 and again in April 1973. With effect from April 1, 1974 the rates of interest on deposits with banks were revised upwards by 0 25 per cent to 1.0 per cent for various categories of deposits. The most important revision was the increase by full one per cent in the case of savings deposits, which was intended to promote savings in this form While the minimum lending rates had already been raised (to 11 per cent with effect from December 1, 1973), the interest payable by the Reserve Bank on additional deposits maintained by commercial banks under Section 42 (1) of the Reserve Bank of India Act was raised from 4.75 per cent to 5 25 per cent.

DEVELOPMENT BANKING

The first Development Bank in India was the Industrial Finance Corporation of India (I F. C I.) which was established in 1948. The I. F. C I. was followed by State Financial Corporations (S F. C's) in 1951, the Industrial Credit and Investment Corporation of India Ltd. (I. C. I. C. I) in 1955 and the Industrial Development Bank of India (I. D. B. I) in 1964. The I D. B. I a wholly owned Reserve Bank Subsidiary, specialises in re financing medium and long term loans given by commercial banks and other development agencies. The Industrial Reconstruction Corporation (I. R. C) set up in 1970 for the benefit of West Bengal now functions on an all India basis. It is mainly concerned with helping sick and ailing industrial units. The State Financial Corporations and allied Agencies like State Industrial Development Corporations and State Investment Corporations are confined to the particular States concerned.

The development banks—both national and State--provide substantial aid by way of loans and underwriting assistance to industrial units, new and old, primarily for the private sector companies, Latterly, they have been assisting many public sector units too

The assistance provided by these financial institutions is supplemented by two other institutions in the public sector, the Life Insurance Corporation of India (L. I. C) around Rs. 722 crores (1972-73) and the Unit Trust of India (U. T. I.) a little over Rs, 119 crores (1965 72). Their surplus resources are diverted as loans to help specific scheme and projects, both in the private sector and in the public sector.

The operations of these financing agencies have altered the capital structure of private industrial sector, especially since the sixties Share-capital now provides a much smaller proportion of the total working funds, as compared to the fifties. The Reserve Bank data show that while share capital provided as much as 40.4 per cent of the total capital employed in the private industrial sector in 1950-51, it decreased to 31 5 per cent in 1960-61, 24.3 per cent in 1965 66 and just 22 per cent in 1970-71.

If individual units are considered, the capital provided by these financial agencies, will work out to 75 80 per cent of their total capital resources in 1971 72 This means that many private sector units are at the mercy of these lending institutions. This was the position which the Dutt Committee proposed to exploit for the formation of a joint sector in industry. (See Industrial policy. infra).

The financial assistance provided by the term-lending institutions during 1973-74 (April-March) registered a significant step-up an increase of Rs. 133 crores in sanctions and Rs. 75 crores in disbursements as against a fall of Rs 9 crores in sanctions and a small rise of Rs. 15 crores, in disbursements during 1972-73.

Table 65

Financial Assistance Sanctioned and Disbursed (IDBI, IFCI, ICICI, IRCI, SFCS and SIDCS)

(Amount in Rupees Crores)

Year (April-March)	Total Assistance Sanctions	 Disbursements
1965—66	169.3	105.8
1966—67	122.0(-27.9)	125.6(+18.7)
1967—68	87.1(-28.6)	105.0(-16.4)
1968—69	132.3(+51.9)	85.8(-18.3)
1969—70	153.8(+16.3)	115.3(+35.5)
1970—71	225.7(+46.7)	146.7(+26.1)
1971—72	304.6(+34.9)	184.5(+25.8)
1972—73	295.9(-2.9)	199.2(+8.0)
1973—74	429.0(+45.0)	274.0(+37.6)

Note: Figures in brackets represent percentage variations over the previous year

In quantitative terms, the main highlight of IDBI's operations during 1973-74 was that both sanctions and disbursements touched record levels. Total assistance (excluding gurantees) sanctioned during the year amounted to Rs 232.6 crores and was higher by 71.9 per cent compared to Rs. 135.3 crores sanctioned in 1972-73. The number of sanctions also increased from 2938 in 1972-73 to 3817 in 1973-74. All the main schemes of assistance i.e., direct assistance, refinance of industrial loans, rediscounting of bills and export finance accounted for the marked step up in the level of sanctions during the year.

Unit Trust

The investible funds of the Trust at the end of June 1974 amounted to Rs 172.18 crores. Of these, ordinary shares accounted for Rs. 77.66 crores (45.1 per cent), preference shares for Rs. 16.17 crores (9.4 per cent) and debentures for Rs. 53.22 crores (30.9 per cent), compared to the last year, there was some shift in the investment portfolio in favour of equities. The balance of Rs. 25.14 crores (14.6 per cent) represented investment in Government securities and bonds of Financial Corporations. advance deposits for debentures and preference shares, advance call deposits for ordinary shares, bridging finance, other deposits, application money for ordinary and preference shares and call and short notice deposits with banks.

Table 66

Assistance Sanctioned and Disbursed by Term Financing Institutions During 1972-73 and 1973-74 (April-March)

(Amounts in Rupees Crores)

	Sanctioned Total *1972-73*	 *1973-74*	*Disbursed Total* *1972-73*	 *1973-74*
I.D.B.I.	92.5	184.4	66.7	118.3
	(25.2)	(34.5)	(19.1)	(22.8)
I.F.C.I.	45.7	43.9	28.0	31.9
I.C.I.C.I.	49.4	61.1	39.7	43.5
I.R.C.I.	6.1	7.2	3.5	5.2
S.F.Cs.	78.7	105.7	41.7	56.6
S.I.D.Cs	23.5	26.7	16.6	18.5
Total	295.9	429.0	199.2	274.0
U.T.I.	9.9	7.9	5.6	7.8
L.I.C.	20.1	25.9	14.0	20.1

Note: Data are Provisional.

Source: R.B.I.

CURRENCY AND EXCHANGE

Indian Currency

The Indian Currency System was converted into the decimal system by the Indian Coinage (Amendment Act, 1955. The Amendment Act was brought into force only on April 1, 1957.

With the amendment of the Indian Coinage Act, the old system of rupees, annas, paise (1 rupee=16 annas, 1 anna=12 paise) was replaced by the rupee paise system and the intermediate coin anna was abolished.

The first one paise coin under the decimal system was issued in March 1962 and the first one rupee coins in July 1962. From Oct. 1, 1964 the one digit denominations of 1 (one) p and 2p. were supplemented by the issue of 3 p. coins.

Foreign Exchange

Under the terms of the Brettonwoods Conference, all international currencies were valued in terms of gold and their exchange rates were fixed on this basis by the International Monetary Fund (I.M F).

Very soon, stresses and strains showed up in this arrangement.

In Aug. 1971, when heavy international pressure built up, against the dollar, the US government suspended the conversion of dollar into gold. This prompted many other countries, to de link their currencies from gold But as no other common measure of international value was available, these currencies began to float, their values rising or falling, according to the international market

In Dec 1971, a *Committee of Ten* leading countries, met at the Smithsonian Institution in Washington and worked out a new system of exchange values. Meanwhile, the dollar was devalued by 8 57 per cent in terms of gold That is to say, the official price of gold was raised from $35 to $38 per ounce

The Smithsonian system was based on this value of the dollar Under this system, a country could set a central rate for its currency in gold, or in units of Special Drawing Rights (SDR's) with the IMF or in another members' currency.

The Indian rupee had been pegged to the pound sterling at a central rate of Rs. 18.9677 per pound India kept up this rate—the pound sterling, acting as the intervention currency, between the rupee and other currencies.

The Sterling floats

On June 23, 1972, the United Kingdom decided to float the pound The floatation came barely six months after the realignment of exchange rates of major currencies agreed to by the Group of Ten, at their meeting in the Smithsonian Institution in Washington on December 18, 1971. UK's export prices had been rising by a larger margin than those of its competitors, and serious doubts existed about the viability of the sterling parity fixed in the Smithsonian Agreement, after the UK jointed the E E. C. account in 1972. The sharp swing in the merchandise account in 1972 reinforced these doubts and starting around mid-June, heavy speculative pressure on sterling developed on the foreign exchange markets. After rulling slightly above its middle rate (the central rate agreed to in December 1971) of $ 2.6012 on June 15, the pound, sagged fairly rapidly. Despite the support operations of the Bank of England and E.E. C. Central banks, it dropped from $ 2.5853 on June 20 to $ 2.5785 on June 22. To help arrest the slide, the Bank of England raised its Bank rate from 5 to 6 per cent on June 22, the clearing banks raised their base lending rates for the second time in June on the 29th and more massive central bank intervention was undertaken on June 22. Nonetheless, the sterling declined to $ 2 5765 With a view to avoiding further heavy erosion of the reserves, sterling was allowed to float on June 23, 1972 with the markets opening three days later.

India

India had devalued the rupee by 57 per cent in June, 1966. This put up the dollar-rupee exchange from Rs. 4.76190 to Rs. 7.7612 per dollar. The values of other foreign currencies were also increased by corresponding percentage. With the devaluation of the dollar in Dec. 1971. the dollar-rupee exchange appreciated to Rs. 7 279 per dollar.

When the pound sterling was floated in June 1972 no significant change occurred in Indian foreign exchange system, except for the small upward adjustment in the Reserve Bank's rates for spot purchase and sales of sterling from/to authorised dealers.

On Feb 16, 1973, the Union Cabinet decided to maintain the existing central rate (fixed on Dec. 20, 1971) between the Indian Rupee and the Pound Sterling at Rs 18.0677 with the Reserve Bank buying or selling with margins of 2.25 per cent either way.

The Indian rupee is now floating on the exchange, along with the pound. The exchange value of the rupee is now derived from the cross-rates between the floating pound and other currencies on the one hand and the fixed rupee sterling rate, on the other.

Table 67

Foreign Exchange Rates

Average of working days		Canada $ 1	U. S. A. $ 2	Hongkong $ 3	Malaysia $ 4	Singapore $ 5	Belgium Francs 6	Denmark Krone 7	France Francs 8	Italy Lire 9	Netherlands Guilders 10	Norway Krone 11	Sweden Krona 12	Japan Yen 13	Switzerland Francs 14	W. Germany Mks. 15	London on New York* 16
		Units of foreign currency to Rs. 100															$ to £
1965-66		22.41	20.90	120.07	63.97		1034.19	144.30	102.31	13021.07	75.22	149.29	107.84	7537.03	90.32	83.52	2.7976
1969-70		14.06	13.24	80.35	40.31	40.31	656.74	99.09	70.32	8262.10	47.75	94.20	68.15	4726.33	56.79	50.77	2.3935
1970-71		13.47	31.23	80.30	40.55	40.55	653.27	99.03	72.91	8246.62	47.58	94.37	68.42	4731.18	56.87	47.93	2.3982
1971-72		13.37	13.27	76.95	39.38	39.98	624.72	97.01	71.90	8099.98	44.65	91.88	66.68	4221.34	52.23	44.07	2.4914
1972-73		12.75	12.93	72.94	36.59	35.90	558.79	88.14	64.07	7498.63	40.85	83.58	60.67	3824.14	47.96	40.55	2.4552
1973-74		12.54	12.74	64.46	30.51	30.72	485.77	75.73	56.36	7542.86	35.21	71.09	55.15	3443.16	39.17	32.79	2.4180
August	1973	13.06	13.07	67.30	31.50	31.50	475.67	73.54	54.84	7463.33	34.27	71.18	53.58	3431.25	38.15	31.25	2.4764
March	1974	11.89	12.32	61.82	29.58	29.99	484.84	76.21	58.96	7790.00	33.66	69.00	55.79	3444.80	37.65	32.06	2.3406
April	,,	12.10	12.59	63.17	29.70	30.03	483.74	75.81	60.77	7948.26	33.45	68.72	54.97	3464.78	37.83	31.60	2.3896
May	,,	12.18	12.73	63.86	29.88	30.27	472.71	74.20	61.46	7979.16	32.85	67.19	53.96	3524.17	36.84	31.12	2.4134
June	,,	12.10	12.60	62.98	29.94	30.33	471.21	74.48	61.27	8127.92	33.12	67.84	54.50	3537.08	37.34	31.57	2.3900
July	,,	12.21	12.60	63.22	30.01	30.74	470.88	74.22	59.71	8054.23	32.99	67.58	54.75	3626.54	37.15	31.95	2.3893
August	,,	12.06	12.38	62.14	29.54	30.32	472.16	74.32	58.81	8048.00	32.84	67.36	54.42	3714.00	36.72	32.20	2.3468

Average of working days		Sri Lanka C Rs.	Australia $A	London £	Kenya Sh.	Uganda Sh.	Tanzania Sh.	Iraq Dinars	New Zealand $NZ
		Units of foreign currency to Rs. 100							
March	1974	82.14	8.17	5.30	84.38	84.38	83.24	4.52	8.47
April	,,	82.60	8.36	5.30	87.73	87.73	86.04	4.52	8.48
May	,,	82.60	8.47	5.30	36.90	86.90	85.10	4.52	8.48
June	,,	82.60	8.38	5.30	89.80	89.80	90.40	4.52	8.59
July	,,	82.60	8.27	5.30	88.96	89.01	88.23	4.52	8.57
August	,,	82.60	8.24	5.30	87.81	87.77	87.72	4.52	8.54

---

* Spot buying rates as quoted in London.

Note: Authorised Dealers' selling rates for T. T's in Bombay.

Source: P. T. I. Ltd., Shuttleworth & Brett. and State Bank of India.

Table 68

ign Exchange Reserves

(In lakhs of rupees)

End of	*Gold*	*SDRs*	*Foreign Exchange*	*Total Reserves (1+2+3)*	*Variations over the previous year/month*
1960-61	117,76	—	185,85	303,61	- 59,25
1965-66	115,89	- -	182,09	297,98	+48,30
1969-70	182,53	92,05	546,37	820,95	+244,25
1970-71	182,53	111,69	438,12	732.34	- -88,61
1971-72	182,53	185,77	480,38	848,68	+116,34
1972-73	182,53	184,86	478,90	846,29	- 2,39
1973-74	182,53	183,71	580,98†	947,22†	+100,93†
August 1973	182,53	183,94	516,95	883,42	- 25,32
September ,,	182,53	183,94	495,95	862,42	—21,00
October ,,	182,53	183,94	446,34	812,81	—49,61
November ,,	182,53	183,94	394,48	760,95	—51,86
December ,,	182,53	183,94	376,75	743,22	—17,73
January 1974	182,53	183,94	412,64†	779,11†	+35,89†
February ,,	182,53	183,71	523,43†	889,67†	+110,56†
March ,,	182,53	183,71	580,98†	947,22†	+57,55†
April ,,	182,53	182,77	663,32†	1028,62†	+81,40†
May ,,	182,53	181,89	768,09†	1132,51†	+103,89†
June ,,	182,53	181,89	761,68†	1126,10†	-- 6,41†
July ,,	182,53	181,89	691,31†	1055,73†	- -70,37†
August ,,	182,53	181,85	653,33†	1017,71†	- 38,02†

Notes: 1. Gold is valued at Rs. 53,58 per 10 grams upto May 1966 and at Rs. 84.39 per 10 grams thereafter,

2. SDRs are valued at 7.50 per nuit

3. All foreign exchange holdings are valued at par/central rates upto June 1972 except for the holdings of Canadian dollars from June 1970 to June 1972 which are valued on the basis of the monthly averages of spot buying and selling rates in New-York, and the holdings of Deutsche marks from May to November 1971 and of yen and sterling from September to November 1971 which are valued on the basis of the monthly averages of spot buying and selling rates in London. From July 1972 holdings in sterling are valued at the average of the Bank's spot buying and selling rates; all other foreign exchange holdings are valued on the basis of the monthly averages of the spot buying and selling rates in London from July 1972 to April 1974, and on the basis of the averages of spot buying and selling rates in London from May 1974.

Provisional.

LAND POLICY

Land Problem

Land is India's major asset and major problem. The land problem has been accumulating through the centuries. Since Independence, it has snowballed into a problem of stupendous magnitude—at once social, economic and political.

Economic Aspect. Land has always been a status symbol in India. Its productive value, if at all it counted, was a secondary matter. This lopsided attitude to land had far-reaching socio economic consequences. It led to fragmentation of ancestral lands into uneconomic holdings. These holdings. unable to support their owners, were ultimately transferred to money-lenders and rich landlords. The erstwhile landowners, either became tenants or joined the army of landless workers. And all hankered after land the landlord, to keep it, the tenant, to own it and the worker, to possess it in one way or another.

The money-lenders and londlords, who held vast holdings mostly in scattered plots—rented them out to tenants, again in fragments and a whole new class of petty tenants and share croppers arose. These fragmented holdings and their petty cultivators have been the bane of the Indian agricultural economy.

Social Aspect

The rich landlords and mony-lenders generally belonged to the upper castes like the Brahmins, the Rajputs, the Kayasthas and the Banias. The petty tenants and workers were drawn from the backward communities, the low caste Harijans and tribals of the hilly tracts—the Girijans. Antagonism between the upper class 'haves' and lower class 'have-nots' slowly developed and lent a deep social colouring to the land question.

Political Angle

While the passion for land lay submerged, problems of tenancy surfaced. Land, being a State subject, legislation was enacted by all the States for land reforms. But the implementation of land reforms was slow and hesitant. This provided an excuse for leftist politicians to engineer a 'land grab' movement in August, 1970. Being a predatory business and patently unlawful, the land grab movement fizzled out But the politicians succeeded in arousing the dormant land hunger of the workers. They are keeping alive this passion of the workers so as to canvass the support of this massive group in the power politics of present-day India. Thus, the land question has assumed a political complexion as well.

The Congress Party under Indira Gandhi has now taken the lead in expediting and implementing land reforms. This is a field rich in political dividends The land reforms now put forward, politically motivated as they are, naturally lay stress on such aspects of the land question, as will rope in more votes This is why the ceiling on land holdings have now become the most important question in land reforms. If ceilings are fixed, excess land will pass into the hands of government, who can then distribute it among the landless.

Land Reforms. The Planning Commission has laid down the basic principles of land reforms as follows: (1) the elimination of idle landlords and intermediaries, (2) a ceiling on holdings of substantial owners, (3) the confirmation of permanent rights to actual cultivators with the option for the lessee to purchase the holding outright at a fair price and (4) fixation of fair rent.

Progress of Land Reforms

1950–1960–Land to the Tiller. The first principle of land reforms to be put into operation was the principle-land to the tiller This meant that absentee landlords and intermediate tenants had to be eliminated. At the time of Independence, about 40 per cent of the total land in the country belonged to landlords in the form of zamindaris jagirs, imams etc. These landed estates and intermediate tenants were abolished during the periods of the Ist and 2nd Plans. Some three million tenants, sub-tenants and share croppers acquired ownership of more than 2.8 million hectares on payment of purchase price of land. In addition, there were tenants who acquired permanent occupancy rights on the land they cultivated, thus becoming virtual owners. And even where tenants have been evicted, a great deal of the land so resumed by the landlord, was brought under his personal cultivation.

Thus, the great majority of agricultural holdings have now become owner-cultivated, whether by tenants, who have acquired ownership or permanent occupancy rights in the land, or by owners have resumed cultivation.

However, the Planning Commission has pointed out in a "position paper" released by the Commission in June 1972, that the implementation of land reforms was tardy and inefficient" in the country as a whole. The paper says that the highly exploitative tenancy known as share cropping still prevails in large parts of the country. "Tenancy arrangements have not only resulted in the perpetuation of social and economic injustice, but have also become insurmountable hurdles in the path of moddernising agriculture".

Ceilings

The ceilings question is not new. As far back as 1960, most of the States had passed laws fixing the ceilings. Highly inflated figures of excess lands available for distribution to the landless were given out at the time. But these figures do not seem to have materialised. Demands for lowering the ceiling limits have since been made and all States have adopted lower ceilings by amending the original enactments so as to make the law an active instrument of what is euphemistically called social justice.

1960-61—Legislation providing for maximum extent of land which a person may hold or in future acquire has been enacted in most of the States. These provisions have also generally been brought into force and are under different stages of implementation. Provisions under these Acts relating to the level of ceiling, the unit of aplication of ceiling, transfers and exemptions vary considerably from State to State.

The rates of ceiling fixed in various States under the 1960-61 legislation are given in the table below.

1971–72 Revision of Ceilings. On Aug. 3, 1972, the Central Land Reforms Committee recommended that the ceiling on landholdings should be reduced to 10-18 acres for irrigated land growing two crops, 27 acres for partially irrigated land growing one crop and 54 acres for dry land for a family of five consisting of father and mother and three minor children. The ceiling laws are to have retrospective operation.

The Committee has also recommended that the exemptions, granted under the original enactments, should also be removed, so as to release a larger extent of land for distribution among the landless. The recommendations are not based on any economic considerations. Nor have any enquiries been instituted in that direction. The reformers, for example, have no idea of what an optimum holding would be in various parts of the country. Their argument simply is that there was no reason why a few people should keep too much land while many went without it. As simple as that!

Many states have already passed laws incorporating these recommendations. AP, MP, UP, Maharashtra, Orissa, Punjab, Haryana, Karnataka, Kerala and T. Nadu are among the states that have brought in new legislations on ceiling.

Ceilings without floorings. The idea of a ceiling on landholdings without a flooring looks incongruous but what is sought is not a rationalisation of holdings. The object is the removal of disparities by the age old device of lopping off the taller poppies. Landholders in India range from those having a few cents of land to those having hundreds of acres. At the moment, nothing can be done to enlarge the smaller holdings, but the larger holders "can be cut down to size." If there is any principle involved in the fixation of ceilings, it is merely the principle involved in the popular expression 'cutting down to size.'

Table 6a

Ceiling on Holdings*

State/Union Territory	*Level of ceiling (acres)*	*Unit of application*
Andhra Pradesh	27 to 324	Landholder
Assam†	25	Landholder
Bihar	10 to 30	Individual member of landholder's family
Gujarat	19 to 132	All members of family‡
Haryana	27 to 100	Landholder
Himachal Pradesh	a	Landholder
Jammu & Kashmir	22¾	Landholder
Karnataka	10 to 54	All members of family‡
Kerala†	12 to 15	All members of family‡
Madhya Pradesh	25 to 75	Individual member of landholder's family
Maharashtra	18 to 126	Landholder
Manipur	25	All members of family‡
Orissa	20 to 80	Landholder
Punjab	27 to 100	Landholder
Rajasthan	22 to 336	All members of family‡
Tamil Nadu	12 to 60	All members of family‡
Tripura	25 to 75	All members of family‡
Uttar Pradesh	48 to 80	Landholder
West Bengal†	12.4 to 17.3	All members of family‡
Delhi	24 to 60	All members of family‡
Mahe	15 to 36	All members of family‡

* The latest ceiling limits in all the States are not available.

† Ceiling as lowered by recent legislation.

‡ Family defined as husband, wife and their minor children.

a 30 acres in district Chamba and land a[illegible]ed to Rs. 125 [illegible] districts

Source: *INDIA 1973*

The Constitution (34th Amendment) Bill passed by the Lok Sabha on Aug. 26, 1974 extends the protection of the 9th schedule (see Constitution supra) to 20 new Land Reform Acts passed in 13 states. This brings the total of Land Reforms Acts protected by the 9th schedule to 86.

Land Holdings

It has been estimated that over 75 per cent of our land holdings consist of small and marginal farms of less than 7.5 acres. Of this, 49 million holdings (a little over 40 per cent of the total) are less than one hectare (2.5 acres) in size. Farming families, with less than one hectare form 34.5 per cent of the total number of farming households and command about 6.8 per cent of the total cultivated area.

The proportion of farmers of this category of holdings in the country is the largest in Kerala (80.5 per cent) followed by Bihar, Tamil Nadu and West Bengal where 50 per cent of the farmers hold land below one hectare The other states where their proportion is reported to be significant are Jammu and Kashmir, Uttar Pradesh, Orissa, Andhra Pradesh and Assam.

It is obvious that we have far too many small holders already. They are a drag on agricultural development. If the surplus land-above ceiling limits-are taken over and distributed to the landless it would simply mean that the number of our small holders would increase to that exent

Surplus land Statistics relating to the extent of distributable land or the number of landless persons in India who have to be accommodated are not available. The following estimates relating to 12 states, will give an idea of the magnitude of the problem and of the gaping margin between the number of landless persons and the area of surplus land.

Table 70

Impact of Land Reforms in Certain States*

State	*Agricultural labour population (in lakhs)*	*Land likely to be declared surplus as a result of new ceilings*			*Remarks*
Maharashtra	54.0	2 0	lakh	hectares	
UP	60 0	2.5	,,	,,	
Bihar	68 4	10.0	,,	,,	
Rajasthan	7.5	5 2	,,	,,	
M P	40.8	3 0	,,	,,	Another 7 lakh hec· forest land.
Orissa	19.2	1.0		,,	Another 10 lakh hec. govt. waste lands.
A P	67.6	NA	,,	,,	10,000 hec. is declared surplus so far
Karnataka	26 4	1.6	lakh	hectares	
Gujarat	18 5	0.4	,,		
W. Bengal	32.4	3 0	,,		
Punjab	7.7	2.0	,,	,,	
Haryana	4 2	0 24	,,	,,	

* Source "*Eastern Economist*", June 8 1973.

It will be seen that even if only two acres are allotted to each family, there will still be a large number of people without any land. Even a lower minimum of one acre will not meet the demand

Any increase in the number of our small holders is fraught with disastrous consequence for the nation. A survey conducted by the Agro Economic Research Centre, † Jorhat (Assam) points out - that the income of cultivators with less than 15 bighas* of land is very meagre. They cannot save at all. A poor peasant has to cover his deficit by borrowings and ultimately by selling his land Within few years he becomes landless and in this process 71 per cent of the total cultivable and cultivated lands pass into the hands of the 25 per cent rural rich. And the poor peasant begins to work in the land, once owned by him as a share cropper on 50:50 basis at best. A poor peasant therefore loses his land in the normal course

If there is a crop failure in successive years, even the middle income farmers go bankrupt and lose their lands to the money lenders or the richer landlords. Thus the majority of owner-farmers turn into share croppers or landless workers, according to the exigencies of circumstances.

The steady degradation of small and medium cultivators all over India into landless agricultural workers or unemployed hands is brought out by the 1971 census. The working population in the 1961 and 1971 census were as follows:

---

† Quoted in Economic Times, March 7, 1972.

* A land measure 1/3 to 2/3 of an acre, prevalent in North India.

	1961 census	*1971 census*
Agricultural cultivators	99.5 million	78.7 million
Agricultural workers	31.5 million	47.3 million
Other workers	57.6 million	57 6 million

These figures show that the number of cultivators have fallen in 1971 by 20.8 million (99.5—78.7 million) and that of the workers have increased by 15.8 million (47.3—31.5 million), in the agricultural sector, while workers in other sectors have remained stationary at 57.6 million.

If land reforms are to regenerate the agricultural economy, the first and foremost thing is to stop the rot that has set in, among the rural population. This would involve negative as well as positive measures. The negative step is to stop any further increase in uneconomic holdings The positive step is to convert the existing small holdings into viable units by consolidation or other appropriate measures. The present land reforms do not achieve either of these objects.

On the other hand, they will intensify the rot by fanning the fires of indigence further. The struggling small holders of to-day will go down the inevitable path of deterioration and become landless workers, in course of time, The landless workers, who are now being promoted as petty landholders, will repeat their process of degeneration and like the mouse-girl in *Panchatantra* turn into landless workers, once again.

The Estimates committee of the Parliament in its 36th report has pointed out that fragmentation has been accentuated, as a side-result of the redistribution of land. It has urged the Government to get suitable laws enacted to prevent fragmentation and to ensure that plot sizes remained viable and economic

THE FOOD PROBLEM

IT was during the days of the British administration, that food was recognised as a national problem for the first time. India was plagued by frequent famines during the British rule. The British appointed Famine Commissions to investigate and identify the causes of famine and to suggest remedial measures. They initiated several measures, both short term and long-term, to prevent the recurrence of famines in India. Although they never succeeded in eliminating famine, they succeeded in a great measure in holding famines in check.

The primary cause of famines is obvious-drought or the failure of rains during critical crop seasons No Commission was necessary to find it out. The problem was how to contain drought and consequent shortage of food supply.

Free India inherited this problem on a magnified scale. With the partition India lost some of the vital centres of food production like Sind and East Bengal to Pakistan So, while India got 82 per cent of the total population of undivided India, it got only 75 per cent of the total cereal production, 65 per cent of wheat production and 68 percent of rice production. Thus the imbalance between population and food production was worsened.

Food Production

Independent India set about to rectify this imbalance by increasing food production. The Grow More Food Campaign started by the British Government during World War II was intensified. More funds were allocated in the Plan for agricultural development In 1954, the then Minister for Agriculture, Rafi Ahmed Kidwai, took the bold step of abolishing all controls on food production With a free market in operation, food production increased from 57·6 million tonnes in 1951 to 68.8 million in 1956. During the Second Plan, although food production increased to 75 million tonnes, demand went up higher still and the gap was filled up by food imports from abroad. During the Third Plan, agricultural production remained stagnant. Worse, it came down to 72·3 million in 1966. The situation improved slightly in 1967 with a production of 74 2 million.

Green Revolution

In 1967-68, there was a significant improvement in wheat production both in India and Pakisthan The spectacular rise in wheat production in Punjab, Haryana and north western U. P. inspired an American official to coin the term "Green revolution" to describe the new phenomenon. The Green revolution was primarily based on new strains or hybrid varieties of seeds, which were capable of high yields. As a result, agricultural production not only recovered from the slump of 1965-67, but shot up spectacularly to a level of 99.5 million tonnes in 1969-70 higher than the previous peak in production achieved in 1964-65.

Weather conditions during 1970-71 were, on the whole, quite favourable and the overall production of foodgrains touched a new peak for the second year. Total foodgrains production during 1970-71 stood at 108.4 million tonnes as against 99.5 million tonnes in 1969-70.

This spectacular increase in production was shared by all the crops, except jowar. New records were established in the production of rice, wheat, bajra and maize Production of jowar, however, declined on account of adverse weather conditions in the major producing States of A P and Maharashtra. Production of pulses remained almost at the last year's level

1971-72 Production of foodgrains, which had progressively increased from 94 million tonnes in 1968 69 to 108.4 million in 1970-71 declined by 3 5 per cent to 105.2 million in 1971-72. Jowar, bajra, maize, barley and pulses registered a fall of as much as 6 4 million tonnes On the other hand, wheat production moved up by 2.7 million tonnes and rice production by 0.5 million tonnes.

High-yielding varieties. Under the fourth Five Year Plan, the principal programme for achieving increased foodgrains production was to raise the coverage under the high yielding varieties of cereals from the base level of 9.2 million hectares in 1968-69 to 25 million hectares in 1973 74. In 1971-72, the area under high yielding crops increased to nearly 18 million hectares

Table 71

Production of Foodgrains

(million tonnes)

Year	Rice	Whea	Other Cerea	Total Cerea	Total	Total grains
1968 69	39.8	18.7	25.1	83.6	10.4	94.0
1969-70	40.4	20.1	27.3	87.8	11.7	99.5
1970-71	42.2	23.8	30.6	96.6	11.8	108.4
1971-72	43.1	26.4	24.6	94.1	11.1	105.2
1972-73	38.6	24.9*	22.2	85.7	9.5	95.2

* Provisional and subject to revision.

Source: Ministry of Agriculture (Development of Food)

Green Revolution turns Grey

The long-term strategy of increased production ran aground in 1973. The erratic monsoon in 1972 coming after three successive bumper crops, put the Green Revolution out of gear. It damaged the kharif crop of 1972-73. In order to make up for the kharif shortfall, the Government launched an intensive rabi summer production drive. A sum of Rs. 190 crores was provided for a crash programme and a concerted drive was made by all the States to make the rabi crop a smashing success In spite of all these efforts, production slumped under hostile weather conditions.

For 25 years, India has been planning to release agriculture from the stranglehold of weather. The Green Revolution brought a break or so, it seemed. But it turned out, that it could not survive the weather, either Besides, brought in other troubles of its own Of five high yielding crops, wheat alone showed some signs of endurance Rice, Jowar, Bajra, and Maize showed themselves dangerously vulnerable to pests and diseases and highly sensitive to water supply They remain extremely risky crops.

Food Production

The total production of foodgrains declined by as much as 10 million tonnes --from 105.2 million tonnes in 1971 72 to 95.2 million tonnes in 1972 73 Production of pulses recorded a fall of 14.5 per cent.

During 1973-74, rainfall and weather conditions for kharif crops have, on the whole been good

The good rains in September and October also provided sufficient soil moisture and enabled extensive sowings of rabi crops. Rainfall during November December, 1973 was generally beneficial for rabi crops but the cold spell in the second fortnight of December, 1973 and again in early February, 1974, the shortage of fertilisers and the paucity of winter rains during January-February 1974 in several rabi areas are likely to affect current crop adversely.

Prices

Foodgrain prices continued to be under considerable pressure during 1973, mainly on account of the large fall in production of foodgrains in 1972 73 and prevalence of scarcity conditions in a number of states.

1973

The All-India Index Number of Wholesale Prices of cereals (base 1961 62=100) showed almost a continuous rise from January to August, 1973. The cereal index moved up from 228 in December, 1972 to 269 in August, 1973, recording thereby a rise of 18 per cent. During the corresponding period of last year the cereal index had recorded a rise of 17 per cent. Following good rains in August, 1973 in most parts of the country which brightened the prospects of 1973-74 kharif crops and with the commencement of marketing of 1973-74 early/autumn crops, prices took an easy turn during September, 1973. The All-India Cereal Index dropped from 269 in August to 266 in September 1973 a fall of 1.1 per cent. The index, however, registered a rise during October November 1973.

The cereal index touched a new high of 279 in November, 1973 which marked an increase of 4.9 per cent over the index for September, 1973. In December, 1973 the cereal index registered a mild decline and stood at 278. The average cereal index for 1973 at 257 was higher than the previous year's average of 221 by 16.3 per cent.

The All-India Index for Pulses declined somewhat during January, 1973 when it came down to 344 from 357 in December, 1972. Thereafter, prices of pulses showed almost a continuous rise till July 1973. Between January and July, 1973, the index for pulses rose by 19.5 per cent. The index declined during August-September 1973 by 4.4 per cent on reports of bright prospects of kharif crops. It rose again during October-November 1973 by 11.7 per cent. During December, 1973 however, there was some fallen prices of pulses and the index declined from 439 in November to 430 in December 1973. The average annual index for 1973 at 387 was higher than that of 1972 by 12.3 per cent.

1974

The cereal index has shown a rise during January February 1974. From 278 in December, 1973, it rose to 293 in February 1974 thereby showing a rise of 5.3 per cent. As compared to last year, the cereal index in February, 1974 showed a rise of 29.6 per cent. During the period, the rice index showed a rise of 5.6 per cent. The index in February, 1974 was higher by 28 per cent as compared to that in February, 1973. The price indices for coarse cereals continued to be substantially higher than last year. The index for pulses also rose during January February 1974 and stood at 442.

Table 72

All India Index Numbers of Wholesale Prices

(Base: 1961 62 100)

Month	*Cereals*				*Pulses*			
	1971	*1972*	*1973*	*1974*	*1971*	*1972*	*1973*	*1974*
January	193	205	236	286	247	295	344	437
February	194	206	243	293	235	292	345	442
March	194	209	244		230	286	361	
April	194	209	242		227	279	363	
May	195	212	248		230	282	374	
June	197	217	254		242	311	377	
July	201	225	262		256	323	411	
August	206	234	269		282	332	405	
September	208	236	266		286	330	393	
October	205	236	267		288	328	411	
November	204	231	279		290	355	439	
December	200	228	278		286	357	430	
Annual Average	199	221	257		258	315	387	

Food Imports

In view of the increased production at home the imports of foodgrains were reduced from 3.6 million tonnes in 1970 to 2.1 million tonnes in 1971. Concessional imports under PL 480 were stopped from January 1972. Imports from other sources however continued. During 1972, total imports of foodgrains into India amounted to 445.5 thousand tonnes valued at about Rs 23.29 crores (c. i. f) of which wheat amounted to 314.5 thousand tonnes and rice 131 thousand.

The failure of kharif procurement in 1971-72 (1.81 lakhs as against 4 86 lakhs the previous season) was warning enough for the Government to import foodgrains for 1972-73. Instead, the Government sponsored a crash programme for the rabi crop and took over the wholesale trade in wheat with the new rabi harvest. Both programmes crashed for different reasons. At the last moment, so to say, the Government decided to import 4 5 million tonnes of wheat from USA on a commercial basis. In the meantime, wheat prices had gone up in USA from about 80 dollars to around 150 dollars a tonne The main reason for the abnormal rise in the price of wheat in USA was the heavy purchases by Russia and China Both countries, anticipated shortfalls in production at home and took advance measures to meet it, while the Government of India, with food shortage staring it in the face, dawdled. The result was that India had to import wheat at about 166 dollars or Rs. 12,250 a tonne This was the penalty for dawdling.

During 1973, total imports of foodgrains into India amounted to 36.14 lakh tonnes (comprising 33.84 lakhs tonnes value at approximately Rs. 319 52 crores (C& F) on commercial basis and 2.30 lakh tonnes on loan basis' as against 4.45 lakh tonnes in 1972 and 20.54 lakh tonnes in 1971.

Imports of foodgrains from Argentina, Canada and the USA were made commercially. Imports from the USSR were made on a loan basis under an agreement signed on October 12, 1973 for the supply of two million tonnes of wheat

Table 73

Import of Foodgrains

(lakh tonnes)

Year	*Country of origin*	*Wheat*	*Rice*	*Milo*	*Total*
1973	Argentina	1.89	...	4 48	6 27
	Canada	6.14	...	...	6.14
	USA	13 81	...	7.52	21.33
	USSR	2.30	...	...	2.30
1973	Total Imports	24.14	...	12 00	36.14
1972	Total Imports	3.14	1.31	...	4.45
1971	Total Imports	18.14	2.40	. .	20.55

Exports

An export quota of 30 thousand tonnes of superior basmati rice was fixed for 1973-74. A quantity of 11.3 thousand tonnes of superior rice was actually exported upto the end of 1973. Besides, a quota of five thousand tonnes of pulses was fixed for exports during 1973-74 against which a quantity of 4 2 thousand tonnes of pulses was exported up to the end of 1973.

Austerity Measures

In pursuance of the directives issued by the centre to all the states/union territories in August, 1972, to enforce austerity measures rigorously the states issued necessary orders to reduce the number of guests at ordinary parties from 50 to 25 and for the strict enforcement of austerity measures. The state governments/union Territories were also advised to impose restrictions on the total number of courses to be served in hotels and other eating houses

Relief Measures

Relief measures undertaken in 1972 in the drought affected states of Andhra Pradesh, Bihar, Gujarat, Madhya Pradesh, Maharashtra, Manipur. Karnataka, Nagaland, Orissa, Rajasthan, Tripura, Tamil Nadu, Uttar Pradesh and West Bengal were continued in 1973. These measures included providing of employment on a massive scale in plan/departmental schemes and relief works, gratuitous relief to the old and the infirm, arrangement for the supply of drinking water and undertaking various Public health measures to prevent occurrence of epidemics. Special emphasis was laid on taking up of productive works for employment, dovetailing, of relief work programmes with normal developmental works and strengthening and expanding the public distribution system.

Following satisfactory rainfall in 1973, relief operations were discontinued in almost all the affected states after September, 1973.

AGRICULTURE

AGRICULTURE is the mainstay of the Indian economy. It accounts for about 50 per cent of the total national income and employs about 75 per cent of the total Indian population Agriculture thus occupies a vital and strategic position in the national economy. In fact, the overall development of the Indian economy is dependent on and determined by agricultural production

Agriculture, in its turn, is dominated by food crops As much as 75 per cent of the total cropped area is taken up by food crops Both tradition and necessity have contributed to the preeminence of food crops in the country.

Land Utilisation

Land Utilisation statistics are available for 30.58 crore hectares or 93 2 per cent of the total area of 32 80 crore hectares

Table 74

Land Utilisation *

	(Crore *1968-69*	hectares) *1969-70*
Total geographical area	32.80	32.80
Total reporting area for land utilisation	30.58	30.58
1 Forest	6.46	6.48
2 Not available for cultivation		
(i) Area put to non agricultural uses	1.57	1.58
(ii) Barren and uncultivable lands	3.15	3.15
Total	4.72	4.73
3 Other uncultivated land excluding fallow lands.		
(i) Permanent pastures and grazing lands	1.33	1.30
(ii) Land under tree crops and groves	0.39	0.40
(iii) Cultivable waste	1.61	1.58
Total	3.33	3.28
4 Fallow lands		
(i) Current fallows	1.41	1.23
(ii) Others	0.91	0.95
Total	2.32	2.18
5 Area sown	13.75	13.91
Area sown more than once	2.21	2.44
Total cropped area	15.96	16.35

* Source: *Indian Agriculture in Brief*, Eleventh Edition - Ministry of Agriculture.

Agricultural Production

1972—73

Foodgrains

During the crop year 1972-73 ending in June, production of most of agricultural commodities received a severe setback mainly as a result of widespread drought in large parts of the country. The index of agricultural production (with triennium ending 1961 62=100 as base) which had risen to the peak level of 131.4 in 1970 71 and had slightly receded to 130 4 in 1971-72, marked a steep decline of 9 per cent coming down to 118.5 during 1972-73. The decline in the production of foodgrains was of the order of 9.5 per cent Among foodgrains, the decline was particularly marked in the case of rice, wheat and jowar. (see The Food Problem supra).

Commercial Crops

In 1972 73, production of commercial crops, as a whole, showed a decline of 8 per cent, over 1971 72. The only crop, which registered an increase was sugar cane, about the order of 8.7 per cent. The output of cotton in 1972 73 was lower by 16.4 per cent and that of jute by 14 3 per cent The fall in the production of oilseeds was the severest, being of the order of nearly 23 per cent as compared to the previous year and 27·6 per cent as compared to the record level of 1970 71.

Table 75

Commercial crops—Production

Commodity	*Unit*	*1968-69*	*1969 70*	*1970 71*	*1971 72*	*1972-73 Final estimate)*
Sugar Cane (in terms of gur)	Million tonnes	12.8	13.8	13.0	11.6	12.6
Cotton	Million bales of 180 kgs. each	5.1	5.3	4.5	6.6	5.5
Jute	Do	2.9	5.7	4.9	5.7	4.9
Oliseeds	Million tonnes	6.8	7.7	9.3	8.7	6.7

Table 76
V Plan Projections
Targets of Principal Agricultural Commodities

Commodity	*Unit*	*1978-79 Targets*	*Targets for Five years of Fifth Plan*
Rice	Million tonnes	54.0	254.0
Wheat	,,	38.0	168.0
Maize	,,	8.0	37.0
Jowar	,,	11.0	51.0
Bajra	,,	8.0	37.0
Other cereals	,,	7.0	33.0
Pulses	,,	14.0	65.0
Total Food-Grains	,,	140.0	645.0
Oilseeds	,,	12.5	55.0
Sugarcane	,,	170.0	775.0
Cotton	Million bales	8.0	36.0
Jute & Mesta	,,	7.7	36.0
Tobacco	Thousand tonnes	425.0	...
Coconuts	Billion nuts	7.7	...
Cashew-nuts	Thousand tonnes	280.0	..
Pepper	,,	38.0	..

CROPS AND SEASONS

India ranks first in the world in the production of groundnuts and tea and cardamom and enjoys a virtual monopoly in the production of lac. It is the second largest producer of rice, jute, raw sugar, rape-seed, sesamum and castor seed.

FOOD CROPS

Cereals

Rice is the leading food crop of India. It is mainly cultivated in T. Nadu, AP, W. Bengal, Assam, Orissa and UP. Wheat is the next important crop. UP, Punjab and Haryana are the main wheat growing areas. Barley is grown in UP and Bihar.

Millets

Among the millets cultivated in India, the more important ones are *jowar* or cholam (Sorghum), *bajra* or comboo (Pennisetim and *ragi* (Eleusine) They are grown not only for their grains but also for their straw, which is a valuable cattle fodder. Millets are grown all over the country in areas of low to moderate rainfall.

Pulses

Pulses of different varieties are grown all over the country in about 58 million acres. The important crops are: Bengal gram (Channa). Red gram Arhas or Tur), Black gram (Mash or Kalai), Green gram (Moong), Sentii (Masur). Horsegram (Kulthi), Lakh (Kesari), Moth (Matki). These pulses are important to the farmer, because he can practise crop rotation and crop mixtures with them. Being leguminous, they help in restoring soil fertility. As they are rich in proteins, they constitute an important and balancing diet for the vegetarian population

Fruits

Endowed with a diversity of climatic conditions, India produces a wide range of fruits, tropical and temperate, whose annual production is estimated at 20 million tonnes. India's exports of fresh fruits and vegetables amounting to about 110 thousand tonnes, represent only a fraction of the total production of the country.

Mangoes and Bananas grown all over India belong to many varieties and are exported in sizable quantities. Citrus fruits are mainly produced in and around Nagpur and Poona, while apples are grown in Himachal Pradesh and Kashmir Grape is a newly introduced crop. Other edible fruits are guava, sapota, pine-apple, jack-fruit and anona.

. Sugar-cane appears to have been cultivated long before the coming of the Aryans, circa 2500 BC. It is now chiefly grown in UP and Bihar and to a lesser extent in AP, T. Nadu and Kerala

Spices

India is the land of spices, par excellence. India produces and exports almost all known spices in sizable quantities In pepper, the most important spice in world trade, India accounts for about 30 to 40 per cent of the world production. In cardamom, India controls, 50 per cent of the world production, in turmeric, 80 per cent, in ginger, 50 per cent and in chillies, around 60 per cent. Coriander seed, cummin seed, fennel seed, fenugreek seed, cassia, tejpat, mace, celery seed, garlic, cinnamon and nutmeg are other spices produced in India The total annual average production of spices in India is estimated at 830,000 tons.

Arecanuts, used for chewing is mainly produced in Kerala, Karnataka and Assam, with Kerala leading.

Oil-seeds

India is one of the largest producers of oil-seeds. Groundnut (pea nuts), sesamum, mustard, coconut and kusum are the most important edible oil-seeds. India has the largest area under groundnuts in the world, covering about 16 million acres.

Philippines is the leading producer of coconut in the world, followed by Indonesia. India comes third with an annual production of nuts valued at around Rs. 540 million. Kerala is the major producer of coconuts in India, followed by Karnataka and T. Nadu.

Rape and mustard are similar oilseeds and are generally cultivated together. They are mainly grown in North India and consumed there. UP, Punjab, Bihar, Bengal and Assam are the major producers.

Soyabeans are at present cultivated in India on an experimental basis

Lemon grass oil is an essential oil distilled from the leaves of special species of grass. Nearly 75 per cent of the world's supply of this oil is produced by Kerala

Linseed is grown for its oil which is used in paints and varnishes It covers an area of 4.5 million acres in Punjab, UP, Bihar and Maharashtra

Castor seeds, are cultivated in AP, Maharashtra, Karnataka and parts of Orissa It is a virtual monopoly of India AP is the leading producer.

Fibres. Cotton is the chief fibre crop of India. The important production areas are Gujarat, Punjab, Maharashtra, T Nadu, MP, Rajasthan, Karnataka and in that order. *Jute mesta* and *hemp* are the other important fibre crops of India Coir extracted from coconut husks is produced in south-west India, especially Kerala

Silk. India is the fifth great producer of raw silk, after Japan, China, Russia and South Korea. The main varieties of silk are mulbery, tasar, eri and muga

Tobacco India is the third, major producer of tobacco in the world with AP producing forty per cent of the country's total output. T Nadu, Karnataka, Orissa, MP, Rajasthan and Punjab are the other tobacco producing states.

In 1972 73 the production of tobacco declined by 13.2 per cent over the previous year , level of 418.9 tonnes

Plantation Crops

Tea, Coffee, Rubber, Cardamom and Cashew nuts are considered plantation crops in India, though the cultivation of cashew is hardly undertaken on a plantation basis. Cardamom is grown mainly in Kerala followed by Karnataka and T. Nadu Cashew is cultivated in farmsteads all along the slopes of the Western Ghats in Kerala and Karnataka. Coffee production is concentrated in Karnataka with Kerala and T Nadu following. India is the largest producer of tea in the world. Assam and W. Bengal in the north, Kerala, Karnataka and T. Nadu in the south are the main producing areas in India. Though India does not count as a world producer of rubber, the crop is important to India, because it supports a fast expanding rubber industry. More than 80 per cent of the total rubber produced in India is contributed by Kerala and the rest by T. Nadu and Karnataka.

Rubber. India occupies the fifth rank among rubber producing countries and accounts for about three per cent of the world production.

Production 1971 -72 = 101,210 tonnes
1972 73 = 112,364 ,,

Coffee. Indian coffee accounts for just about two per cent of the world production and its contribution to world trade is around one per cent.

Production 1969-70 = 63,108 tonnes
1970-71 = 109,000 ,,

Tea. India is the world's leading producer and exporter of tea It produces around 38 per cent of the world's entire production.

Production 1970 = 419 million kg
1971 = 453 ,, ,,

Cashewnuts. The production of cashewnuts in India is supplemented by raw nuts imported from East Africa both of which are processed and exported.

Production 1968 69 = 175,000 tonnes
Imports of raw nuts ,, = 122,000 ,,
Export 1971 72 = 60,840 ,,

Cardamom is grown mainly in Kerala 116,202 acres) followed by Karnataka (69,739 acres) and Tamil Nadu (26,769 acres).

Production 1971 -72=3,785 metric tonnes
1972-73=2,400 ,, ,,

Table 77

Exports of Spices from India during the year 1972—73

Commodities	*Quantity in M Tons*	*Value in '000 Rs.*
Peper	19,900 92	142,466 93
Cardamom small*	1,524.12	74,474.65
Cardamom big*	65 60	910.66
Chillies	372.44	1,823.39
Ginger	6,488.30	22,387.50
Turmeric	7,195.62	19,343.92
Curry powder	1,578.26	7,755.72
Coriander seed	984.35	2,307.45
Cummin seed	1,963.09	8,464·73
Celery seed	2,020.50	8,535.50
Fennel seed	863.42	2,888.95
Fenugreek seed	1,308 89	2,254.48
Garlic	1.337 76	923.39
Aniseed	8.79	35.72
Cassin	770.26	3,472.50
Tejpat	46 28	28.85
Total	46,428 60	298,074.34

---

* *Source:* Customs daily/weekly list.

Table 78

Sowing and Harvesting Periods of Crops

Season	*Periods*	*Sowing period*	*Harvesting period*	*Principal crops*
Kharif	May to Middle of Oct.	Generally at the beginning of the south west monsoon-May to July	At the end of the south-west monsoon-Sept. to Oct. (may continue till November in some cases)	Jowar, Bajra, Rice, Maize, Ragi, Tur, Moong, Urd, Sugar-cane,* groundnut, castor, sesamum, cotton, jute and tobacco.
Zaid Kharif	August to January	August to September	December to January	Rice, Jowar, Rapeseed and Mustard, cotton, oil-seeds and Toria.
Rabi	Middle of October to middle of April.	At the beginning of the cold weather-October to December	February to April (may continue till May in some cases)	Wheat, Barley, Gram, Linseed, Mustard, Masur, Oats, Peas and Potatoes
Zaid Rabi	Beginning of February to beginning of May	At the beginning of hot weather-Feb. to March	Middle of April to May (may continue up to June in some cases	Water-melon, Toria, Summer Vegetables, Jowar and Maize for fodder

Source: Indian crop Calendar

* Sugar-cane is an annual crop, duration 10-12 months

IRRIGATION

The Problem of Irrigation

THE primary objective of irrigation in India is to achieve a regular level of higher production in cultivated areas. India as a whole, is well provided with water The monsoon rains see to that The average surface water resources of India have been placed at about 168 million hectare metres. The underground water resources are also extensive, about 22 million hectare metres. The problem is to conserve this water supply, so as to make it available for cultivation at the proper time and in sufficient quantities.

Paradoxical, though it looks, this problem has been created by rains. Rainfall, in India is not evenly distributed through the year. It is uncertain, erratic and altogether unpredictable ' Sometimes, a particular area may receive the total rainfall for the year in a few days, without another drop of rain for the rest of the year. Often the drought that follows the rains, is so intense, that the surface ground water is evaporated in a very short period. Even Cherrapunji * in Meghalaya the rainiest spot in the world, experiences water shortage, when the monsoon is over.

Importance of Irrigation. To combat the adverse effects of uncertain and uneven rains, artificial irrigation has been resorted to in India from very ancient times Some of the old dams and irrigation canals, still existing, prove this fact. It is however only in recent years that the problem of irrigation has been taken up on a scientific basis all over India. It is now admitted, all round, that irrigation is the first basic input for a successful agricultural economy.

Planned Irrigation. Irrigation involves not merely supply of water but also the control of water supply. There can be too little water for cultivation and also too much water Heavy rains and floods cause a lot of damage to crops and sometimes wipe them out wholesale. Intense drought, coming in the wake of heavy rains, accentuates the problem Heavy rains invariably cause water-logging in low-lying areas and soil erosion in high level regions. The sea is a specially dangerous element of soil erosion in coastal areas. It sometimes lays waste extensive tracts of cultivated and cultivable land on the coasts.

' See, *Climate and Rainfall Supra*

* Actually, the place that receives the maximum amount of rainfall in the world is not *Cherrapunji but Mawsynram*, 10 km. from Cherrapunji. The name Cherrapunji is retained, as it is the long-familiar name. After all, 10 kms. do not make much difference in such matter, (See also *Meghalaya* infra).

A planned system of irrigation has to take account of: (1) the supply of necessary water to the crops in season (2) the drainage and disposal of excess water, especially when it is out of season (3) prevention of flood damages (4) conservation or stocking of water for release in dry seasons (5) conservation of soil in higher elevations and the prevention of erosion by sea in coastal tracts. All these activities come under the Ministry of Irrigation.

Flood Control Board constituted in 1954 is entrusted with surveys and research of incidence of flood in different parts of the country, so as to suggest measures for minimising flood damages. Waterlogging and drainage and sea erosion are also dealt with by the Board.

Central Ground Water Board took over the Ground Water Wing of the Geological survey of India in 1973-74. It is now working through seven directorates at Chandigarh, Jaipur, Lucknow, Nagpur, Hyderabad, Calcutta and Gauhati. The Board carries out ground water surveys, and evaluation of ground water resources available for irrigation. The Board has constructed 71 exploratory wells, 96 observation wells and 15 slum holes, and 55 production tube wells in 1973.

Irrigation Potential

Since the First Plan began in 1951, 588 major and medium irrigation projects have been taken up for construction. 361 of these projects have already been completed. An irrigation potential of 10.7 million hectares has been created from major and medium irrigation projects since 1951.

By 1971-72 an additional potential of 9.5 million hectares, was created. In 1972-73, 6.9 million hectares were added. The additional areas likely to be benefitted in 1973—74 is estimated at 1.55 million hectares.

Against the Fourth Plan target of 7.2 million hectares, the achievement is likely to be 8.2 million hectares. The overall level of cropped area benefitting from minor irrigation works is likely to be 23.5 million hectares at the end of 1973—74 as against the level of 19 million hectares in 1968-69.

Table 79

Sl. No.	*Item*	*Level of achievement* *1965-66*	*1968-69*	*1973-74* (anticipated)
1.	Dug Wells	5,119	5,695	6,500
2.	Electrical pumps	513	1,089	2,135
3.	Private tubewells	93	266	820
4.	State tubewells	12	15	20

Table 80

Major and Minor Irrigation Projects

(Under construction and or completed) through the Plan Period 1947—73.

Name of State	*Number of Schemes*	*Number completed*	*Area benefited in million hectares*
AP	50	32	2.23
Assam	6	2	0.09
Bihar	49	34	2.94
Gujarat	56	44	1.40
Haryana	7	2	1.34
J & K	8	4	0.04
Karnataka	24	14	1.31
Kerala	11	11	0.50
M P	51	28	1.19
Maharashtra	70	48	1.35
Orissa	16	3	1.28
Punjab	8	8	1.14
Rajasthan	53	44	2.19
T. Nadu	27	15	0.32
U P	64	53	4.22
W. Bengal	6	3	1.02

Source: Report 1972-73, Ministry of Irrigation and Power.

Outlay and Returns

A U. N. I. report says that India had invested a total of Rs. 3500 crores in major and medium irrigation projects till 1973 74. But the returns projects expected had not materialised at least, in financial terms. From 1951, the loss incurred by the State exchequers totalled Rs. 1000 crores, including interest charges. Except for Andhra Pradesh, Punjab and Haryana no other state was able to meet even the annual operation expenses by levying water cess.

Table 81

Irrigated Area under cereals and millets (1972 - 73)

State	('000 hectares)
Andhra Pradesh	4223
Assam	572
Bihar	2732
Gujarat	1307
Haryana	2230
Himachal Pradesh	156
J & K	330
Karnataka	1335
Kerala	601
Madhya Pradesh	1523
Maharashtra	1656
Manipur	73
Meghalaya	37
Nagaland	12
Orissa	1492
Punjab	4245
Rajasthan	2453
Tamil Nadu	3410
Tripura	22
U P.	8344
West Bengal	1541
Andaman & Nicobar Islands	—
Arunachal Pradesh	
Dadra & Nagar Haveli	less than 500 hectares
Goa, Daman and Diu	8
Delhi	56
Lakshadweep	less than 500 hectares
Mizoram	2
Pondicherry	40
All India	38552

Source: Bureau of Economics and Statistics Ministry of Agriculture, New Delhi

National Water Grid

A National Water Grid for the whole of India, is the latest development programme in water supply. India suffers from a terrible maldistribution of natural water supply. The basins of the Ganga, the Brahmaputra, Mahanadi and others in the north and west-flowing rivers in Western India have excess water supply during monsoons, while the rest of the country "has relatively meagre and highly variable waterflows" The national Water Grid has been conceived to equalise water supply in the different parts of India, for irrigation, navigation, drinking water etc.

The scheme is to connect the great rivers of India by canals and to open deviation canals, from rivers to drought-prone areas. The main project in the scheme is the Ganga-Cauvery Link connecting north and south India The scheme has been condemned in many quarters, as a fancy project, which is not worth its cost, in any event. However, the Government is going ahead with it

ANIMAL HUSBANDRY

Beginnings of Animal Husbandry

Animal husbandry developed in India from very early days The bull was sacred to the Indus Valley people. The water buffalo was known in Harappa, long before it appeared anywhere else in the world Ancient India, also appears to have been the original home of poultry. Most ornithologists are agreed, that all domestic specie of poultry descended from the Indian wild fowl. The cow became important, with the arrival of the Aryans, who worshipped it. *Krishna Leela* or *Sree Krishna's* sport with the *Gopis* (milk maids) highlights the esteem extended to dairying in ancient India. Radha, the beautiful consort of Krishna, was herself a milkmaid

A Ritual

It is the religious associations of the cow and the bull, that have kept alive, animal husbandry in India, through the centuries. It is ironic that this religious reverence for animals, has not helped the poor cattle in any way. On the contrary, it has bred communal riots and political agitations.

Today, animal husbandry in India is a traditional duty—a ritual. This is why, India possesses the largest cattle population in the world—more than 175 million—and produces the lowest output of milk—about 380 kg per animal in an year. Many cattle are ill-nourished and sick. But religious inhibitions obstruct, even the sterilisation of the unfit—let alone the painless killing of sick animals.

Development Programmes

One of the Directive Principles of the Constitution, enjoins the State to organise agriculture and animal husbandry on modern lines Development Programmes, for animal husbandry, were therefore taken in hand with the First Plan. They have been continuing ever since.

The Fourth Plan programmes have a three-fold objective, namely, to increase the [illegible] foods nutritive for the people to provide draught-power for farm operations and to improve the output of certain products of commercial importance, such as wool and hides.

Efficient animal husbandry has, however, to be pursued as an integral part of a sound system of agriculture. The combination of crop production with livestock-raising enables fuller utilisation of farm by-products, increase in income, conservation of soil fertility and fuller employment. For animal husbandry, the total outlay included in the Fourth Plan is Rs 94.06 crores.

CATTLE

It is estimated that the present intake of milk in India, averages about 110 grams per person per day, as against 284 grams recommended by the Nutritional Advisory Committee. The development of dairying, is therefore important to India, not only as an additional source of income to the marginal and small farmers, but also as a source of nutritional food, to an ill-nourished nation.

State wise, the largest number of cattle are found in UP, followed by MP, Bihar, Maharashtra, Rajasthan, AP, W. Bengal, T. Nadu, Orissa, Karnataka, Gujarat, Assam, and Punjab

Important Breeds of Cattle

Although the majority of Indian Cattle are non descript, there are 26 well defined breeds, both draught and milch types. They are (1) Amritamahal (Karnataka), (2) Bachuar (Bihar), (3) Bargur (T Nadu), (4) Dengi (Maharashtra), (5) Deoni (AP), (6) Gaolao (MP), (7) Gir (Gujarat), (8) Hallikar (Karnataka), (9) Hariana (Haryana, Delhi), (10) Kangayam (T. Nadu), (11) Kankrej (Rajasthan & Gujarat), (12) Kenkatha (UP), (13) Kherigarh (UP), (14) Khillari (Maharashtra), (15) Krishna Valley (Maharashtra), (16) Malvi (AP) and (Rajasthan), (17) Mewati (Kosi-UP), (18) Nagore (Rajasthan), (19) Nimari (Gujarat), (20) Ongole (Nellore-AP), (21) Ponwar (UP), (22) Rath (Rajasthan), (23) Sindhi Red (West Pakistan), (24) Sahiwal (W Pakistan), (25) Siri (W. Bengal), (26) Tharparkar (W. Pakistan)

Exotic Breeds. As part of the programme to increase the milk-yield of Indian cattle, a number of exotic breeds of dairy cattle have been imported into India. The more important of these breeds are: *Jersey*, *Holstein-Fresian*, *Ayrshire*, *Brown Swiss*, *Guernsey*, and *German Freckvieh*.

Central Stud Farm. All India Central Stud Farm was started in Bangalore in 1955 The Farm consits of pedigree breeds from all parts of India as well as foreign breeds The Indian breeds, in this farm are Sindhi, Tharpur, Gir, Murrahs, Ongole, and Kangayam. Of the foreign breeds, American Jersey is the most important.

Buffaloes

Buffaloes unlike cattle, are mainly bred for milk. Bulls, even though they are hardy and strong are hardly used as draught animals. The better-known breeds are Jaffarabad (Gujarat), Murra (Punjab, Haryana and Delhi), Nagpuri (MP), Nili (W. Pakistan) and Surti (Gujarat).

Sheep

India possesses some 42 million sheep and occupies the fifth rank among the major sheep-rearing countries of the world, the first four being Australia (180.1 million), Soviet Union (137.8 million), New Zealand (60.3 million) and China (59 million). In wool production, however, India goes down to the 12th rank, its actual output being 32 7 million kg, in 1970 71.

Indian varieties being poor suppliers of wool, exotic breeds have to be cross bred with Indian varieties so that the stock may be improved This is a basic necessity. States like Rajasthan, U. P, Punjab, Haryana, Andhra Pradesh, and Karnataka, which have warm climate and scanty rainfall, are well suited for sheep farming A half breed sheep in these areas, will gross around Rs 4400 per annum per flock of 100, on a capital of Rs 8000

Sheep rearing now is confined to the dry, arid tracts of India. The Deccan plateau has the largest number of flocks.

Important Breeds are Lohi, Bikaneri, Marwani, Kautchi, and Kathiawari in Western India, Deccani, Nellore, Bellary, Mandya and Banderi in South India.

Exotic breeds like Spanish, Merino, Correidale, Polworth and Ramboinellet have been imported for cross breeding with Indian types.

Goats

The goat is proverbially, the poor man's animal. It is hardy and cheap to maintain. It provides a variety of commercially useful articles Goat's milk is wholesome and nourishing and is considered specially suitable for infants and invalids. Goat's meat is preferred by many people to beef and mutton. Goat skins are in great demand for leather for gloves and shoes. The intestines of goats are used to make *cat-gut*. Goat hair is used for rope making

There are several distinct breeds of goats in India The well known breeds are *Kashmiri, Gaddi, Chambu, Pashmira, Jamnapuri, Beetal, Marwari, Osmanabadi, Barbari. Malabari* and *Bengali*.

The main foreign breeds introduced into India to improve the local species are Togganbarg, Alpine, Anglo-Nubian, Saanen and Sugora

Pigs

Pig-rearing is well suited to states like Punjab, Haryana, UP, Delhi, Jammu and Kashmir. Here again, the Indian stock being poor, cross breeds have to be developed. Pig rearing gives quick returns on low investments. A net return of Rs. 8300 per annum may be obtained by rearing 10 sows with a capital investment of Rs. 6,300

Pig raising, in spite of its commercial attractions has not made much headway in India. It is almost entirely in the hands of the poor classes who still follow old and primitive methods. The common village pig in India is a scrub animal of slow growth and inferior pork.

The main foreign boars important for cross-breeding, include the Large White Yorkshire, Middle White Yorkshire, Berkshire, Tanworth, Essex and Wessex Addleback, all British The American breeds include Chester-White, Duroc, and Hampshire

Modern bacon factories are being set up in different parts of the country. to support pig-raising schemes.

Poultry

Poultry is an excellent source of animal protein. The per capita availability of poultry meat in India is estimated to be 50 grams and that of eggs 12. This is far too low. The production of poultry meat and eggs, have to be increased to meet national requirements.

Indian poultry includes several kinds of birds, such as chicken, ducks, geese, turkeys and guinea fowls In India. the chicken or domestic fowl occupies the pride of place among birds. Ducks come next, with geese, turkeys and others following.

State-wise, the largest number is in Andhra Pradesh, followed by Bihar, W. Bengal, T. Nadu, Maharashtra, Assam, Kerala, Karnataka, Orissa, MP, UP, Gujarat, Punjab. J & K and Rajasthan, in that order.

By and large indigenous domestic fowls are poor layers, though they are ideal mother, good sitters and excellent foragers. For some years, new foreign breeds like the *White Leghorn, Rhode Island Red, Black Minorca, Plymouth Rock, Australorp, Light Sussex, New Hampshire* and others have been brought into India. These have interbred with the local varieties and have generally improved the specie. Now, the exotic breeds are themselves being reared in poultry farms all over the country. This has resulted in an appreciable increase in the quantity of eggs and meat produced in the country.

The annual production of eggs according to the latest figures available had increased from about 288 crores at the end of 1961 to about 600 crores by March, 1971.

Broilers. Efforts are being made to encourage broiler production in the country. Two poultry dressing plants at Poona and Chandigarh, with a daily capacity of 8,000 and 4,800 birds respectively, have initiated a number of extension programes, Besides, there are 15 small poultry dressing plants in the States, each with a capacity to handle about 2,000 broilers a day.

Ducks raised in India, are for the most part of the egg-laying type. Among the indigenous breeds, the most important are the *Sylet Mete* found in the villages in Eastern India and the *Nageswari* found in the Surma Valley of Assam and in Bangladesh. The improved breeds are the *Indian Runner* and *Khaki Campbell*. None of these varieties are bred pure. The average Indian duck is a mixture of different breeds.

India has approximately 16 million ducks representing 18 per cent of the domesticated duck population of the world. Tamil Nadu and Bengal account for more than 75 per cent of ducks in India The average annual egg production of Indian ducks is 90 to 100 per year.

Geese, Turkeys and Guinea fowls do count as egg-layers. They are reared for their meat, in very small numbers, in different parts of the country. They do not materially affect the production of meat or eggs in India.

Milk Plants

The total number of dairy plants in operation increased from 132 in 1972-73 to 141 in 73-74, comprising 79 liquid milk plants, 12 milk product factories and 50 pilot milk centres. However, the average daily output of milk and milk products, marginally declined to 28.8 lakh litres, as against 29 lakhs in 72-73.

The main source of milk supply in India is the buffalo. Out of 21 4 million tonnes of milk produced annually, the buffaloes contribute 11 million. In fact, India produces the major portion of the buffalo milk in the world (see Table).

Table 82

FAO Estimates of Milk Production

(Thousand tonnes)

Year	source	India	World
1966:	Cows	9,220	347,820
	Goats	550	6,728
	Sheep	—	6,121
	Buffalo	11,166	18,905
	Total	20,936	379,574
1969:	Cows	9,500	364,471
	Goats	565	6,563
	Sheep	—	6,318
	Buffalo	11,210	19,946
	Total	21,275	397,298
1970.	Cows	9,550	367,117
	Goats	570	6,554
	Sheep	-	6,384
	Buffalo	11,240	20,267
	Total	21,360	400,322

Source: *UN Year Book 1971*

The presence of a large buffalo population has its positive and negative impact on milk supply. Buffaloes are seasonal breeders and these species calve only in the rainy months resulting in short supplies of milk during summer. Even though the gross cost of production for one litre of buffalo milk is higher at Rs. 1.52 as compared with Rs. 0 70 for a cross-bred cow, the buffalo occupies a dominating position as dairy animal in India.

Operation Flood Project

Under the Operation Flood Project, the World Food Programme (WFP) will supply free of cost, during five years 1970 71 to 1974-75 in a phased programme 1.2 lakh tonnes of skimmed milk powder (SMP) and 42,000 tonnes of butter oil (BO) at a cost of Rs. 41.90 crores which, when reconstituted into milk will generate funds worth about Rs. 95 crores. This scheme is being implemented by the Indian Dairy Corporation.

The aid under the World Food Programme, came in handy in 1973-74, when there was a fall in the supply of local milk. The fall in supply was due to the drought, and also to the diversion of milk for producing higher priced milk products like ghee. The supplies from the W. F. P. were used to make up the short supply by distributing toned and reconstituted milk.

Table 83

Livestock Census - 1972* as on 15 - 4 - 1972

Figures in Thousands ('000)

(a) *Indicates less than 500*

State	*Cattle*	*Buffaloes*	*Sheep*	*Goats*	*Pigs*	*Poultry*
Andhra Pradesh	12525	7028	8251	4308	674	18782
Bihar	14911	3679	983	7364	879	12560
Kerala	2835	475	29	1411	1	11073
Andaman & Nicobar	19	8	(a	11	39	157
Nagaland	93	10	(a)	18	184	703
Rajasthan	12470	4952	8556	12162	117	1235
Pondicherry	90	12	7	42	2	180
Gujarat	6536	3610	1764	3241	5	3107
Madhya Pradesh	26392	5789	1011	6133	342	6735
Maharashtra	14697	3269	2106	5849	197	11834
Haryana	2452	2518	459	478	143	963
Himachal Pradesh	1967	488	1016	796	2	187
Karnataka	10134	3289	4827	3788	280	10315
Punjab	3606	4067	436	890	38	3170
Tripura	525	20	2	147	44	518
Chandigarh	5	11	1	2		83
Uttar Pradesh	26145	12581	1956	6595	1302	3983
Jammu & Kashmir	2057	493	1072	569	1	1654
West Bengal	12138	839	808	5386	378	15401
Delhi	68	128	4	12	11	304
Goa, Daman & Diu	124	38	2	21	52	346
Dadra & Nagar Haveli	40	3	(a)	12	(a)	38
Lakshadweep	1	—	—	4	—	25
Mizoram	25	2	1	8	48	603
Meghalaya	468	46	18	96	127	975
Orissa	11769	1409	1438	2984	378	7973

---

* Figures for Tamil Nadu, Manipur and Arunachal not available

Source: The Office of the Commissioner of Livestock, Krishi Bhavan, New Delhi.

FORESTRY

FORESTRY like agriculture is a State subject and the State Governments administer the forests. But the Union Government exercises a supervisory control. It has its own department, under an Inspector-General of Forests, India.

Scientific Forestry. The practice of scientific forestry in India may be said to have begun when Sir Dietrich Brandis took over as Inspector-General of Forests, India, in 1864. It was at his instance that the Government decided to adopt a scientific policy for forests. On the advice of Dr. Voelcker, a German expert, the Government of India issued a resolution dated 19th October, 1864 declaring a Forest Policy In 1865, the Indian Forest Act was passed·

Under this Act the Indian forests were surveyed and classified as *reserved* and *protected*. In the reserved forests, the existing rights were settled, transferred or commuted while in the protected forests, they were recorded and regulated. To put it otherwise in a reserved forest, everything was an offence that was *not permitted* while in a protected forest, nothing was an offence that was *not prohibited*.

The Forest policy declared by the Government laid down the broad principles under which forests of different types were to be administered. Successful implementation of this excellent forest policy resulted in a steady development of the forests in the country. For nearly 60 years, forests were continuously conserved. There was some depletion of the forest capital during the First World War, but this did not affect the growth and accumulation of forest capital But in World War II forests were heavily felled far beyond their sustained production.

National Forest Policy

When India became independent, the forest policy of 1894 was revised in the light of later experience and a National Forest Policy was promulgated in 1952.

The National Forest Policy resolution proposed that the area under forests be steadily raised to 33.3 per cent of the total land area, the proportion to be aimed at being 60 per cent in the hilly areas and 20 per cent in the plains *

In the 22 years, that have elasped since the National Forest Policy was declared, important developments have taken place, which have significant bearing on Forestry. The rapid growth of population has, on the one hand, increased the demand for a large variety of products and, on the other, brought about a reduction in the area under forest, because of human pressure on land According to experts, forestry development programmes will have to be designed to increase the production of industrial wood from the present level of over 8.9 million cubic metres to 22.5 million cubic metres by 1980 and 41 million cubic metres by 1990 The demand for fuel wood is expected to rise steeply from 203 million cubic metres to 300 million cubic metres in the next 15 or 16 years· As against this, about 1.7 million hectares of forest land have been lost between 1951 and 1969 because of the construction of river valley projects, transmission lines and roads, and establishment of industries and townships. All these call for a reformulation of forest policy. In 1974, The Central Board of Forestry appointed a Sub-Committee to review the National Forest Policy, in the light of new developments and to revise the Indian Forest Act 1927, accordingly.

Forest area. Indian forests cover 7.53 lakhs sq. km. which is 22.3 per cent of the total geographical area Not only is the forest area proportionately smaller but the productivity per hectare per annum, is much less than the average yield of forests in other countries.

Table 84

World Forest Statistics

	World	*India*	*Japan*	*UK*	*USA*	*USSR*
Forest in use (Million hectares)	1391.1	45.6	12.4	1.5	213.7	485.5
Growing stock in Forest in use (Million cubic metr	143,290	2,298	725	101	17,768	69,847

Source: *Forest & Forestry*, K. P. Sagreiya.

The Act now in force, is the Indian Forest Act, 1927.

Table 85

Distribution of Forests of India

('000 hectares)

States/ Union Territories	Geographical area (as on 1-7-1971)	Forest area 1966—67	Percentage of forest area to geographical area
AP	27,675	6,651	24.0
Assam	9,662	3,808	38.2
Bihar	17,388	3,085	17.7
Gujarat	19,599	1,940	9.9
Haryana	4,422	136	3.1
Himachal Pradesh	5,567	2,165	38.7
J & K.	22,224	2,081	9.4
Karnataka	19,177	3,520	18.4
Kerala	3,886	1,041	26.8
MP	44,284	17,299	39.1
Manipur	2,236	602	26.9
Meghalaya	2,248	757	33.7
Maharashtra	30,776	6,686	21.7
Nagaland	1,653	310	18.8
Orissa	15,584	6,816	43.7
Punjab	5,036	188	3.7
Rajasthan	34,222	3,764	11.0
T. Nadu	13,007	2,218	17.1
Tripura	1,048	633	60.4
UP	29,441	4,571	15.5
W. Bengal	8,785	1,183	13.5
A & N. Islands	829	635	76.6
Arunachal Pradesh	8,358	5,154	61.7
Chandigarh	11	...	..
D & N Haveli	49	..	..
Delhi	149	5	3.4
Goa, Daman & Diu	381	103	27.0
Lakshadweep	3	...	...
Mizoram*		...	...
Pondicherry	48	...	...
All India	328,048†	75,351	23.3

* Includes Assam.

† Includes 8,411 thousand hectares, the area under illegal occupation of Pakistan and China.

One hectare is equivalent to 2.471 acres.

Source: *Eastern Economist* March 31, 1972.

It will be seen that only Assam, H. Pradesh, Meghalaya, Orissa, A. & N. Islands, Arunachal Pradesh and Tripura, exceed the national norm of 33.3 per cent laid down in the Forest Policy. Kerala, Goa, Daman and Diu and Manipur and Maharashtra maintain plus 20 per cent forest of their respective land areas. All the other States and U. Territories have low percentages of forest land and need urgent reforestation.

Ownership

The State owns the greatest forest area–71.17 million hectares, corporate bodies, account for 2.48 million and private individuals 1.38 million.

Classification of Forests in India

1. Types of forests

The forests of India, may be broadly divided into three classes: (1) Coniferous forests, (2) Broadleaved forests and (3) Miscellaneous types

Coniferous forests occupy 3.9 per cent of the total forest area (2.8 million hectares) and are confined to the Himalayan ranges. These forests extend from Kashmir to Assam. The most important among the conifers are deodar (Cedrus deodara), chir pine (Pinus roxburghi), blue pine (Pinus wallichiana), chir pine (Pinus Khasya Syn. P. insularis), spruce (Picea smythiana and Picea spinulosa) and fir (Abies pindrow and Abies spectabilis

Broadleaved forests, accounting for 96.1 per cent of the total forest area (70.1 million hectares) are scattered all over India.

The more important broadleaved timbers are teak (Tectona grandis, sal (Shorea robusta), sissoo (Dalbergia sissoo) Gurjan (Dipterocarpus species), rosewood (Dalbergia latifolia), Indian laurel (Terminalis tomentosa), padauk (Pterocarpus dalbergioides) and benteak (Largerstromia lanceolata).

Teak forests covering around 8.7 million hectares are mainly found in Central and South India, particularly in Kerala, Karnataka, Tamil Nadu, Madhya Pradesh and Andhra Pradesh. Sal is widespread over the entire northern belt, and covers some 8.8 million hectares It occurs mostly in Assam, Bihar, Orissa, Tripura, Uttar Pradesh and the eastern parts of Madhya Pradesh.

Miscellaneous types are widely distributed over an area of 51.5 million hectares all over India. These are not dense forests but contain some valuable woods Sandal wood (Santalam album) for example is seen thriving in the dry deciduous forests of Andhra Pradesh, Karnataka, and Tamil Nadu in the south.

2. Botanical Divisions

Indian forests fall into five botanical types: (1) Evergreen (2) Deciduous (3) Dry (4) Hill (5) Tidal or Littoral.

Evergreen forests are found where the rainfall is 80″ to 120″ i. e. the Western Ghats and the sub—Himalayan regions in the east. Hard wood such as teak, ebony, rosewood and ironwood are found in this area. Bamboos of all varieties thrive well here.

Deciduous forests or monsoon forests are seen in areas where the rainfall ranges from 60″ to 80″. These forests occupy the larger part of the Deccan plateau. The trees are big and provide fine timber, teak, sal, padauk, sandal wood, redwood, arjun etc.

Dry forests occur where rainfall is between 30″ and 40″. The desert regions of Rajasthan and South Punjab are such places. The plants here have thick and fleshy stems and leaves, and the forests mostly consist of thickets of shrubs with a few stunted trees.

Hill forests are found in South India above 5,000 ft. and in the Himalayas above 3,000 ft. elevation. The trees are evergreen and include the very best timber like oak, picea, deodar, pines, chestnut, walnut, maple, elm, ash and birches. Laurels, poplars and rhododendrons also grow profusely here.

Littoral forests are found in the estuaries of great rivers like Indus, Ganges and Mahanadi. The trees here provide excellent firewood and constitute a rich source of fuel.

Forest Wealth

Major Produce

Wood is the most important item of forest produce. It is economically used in industry as timber, cellulosic-material or as firewood and charcoal.

Minor Produce

All forest produce other than wood is referred to as Minor Produce. The minor forest products include (1) natural gums of various types (2) resins (3) plants and parts of plants, for use in dyeing and tanning (4) balsams of various types, (5) lac and lac products and (6) medicinal herbs.

Bamboo

The most important and plentiful plant among minor forest products is the ubiquitous bamboo. Bamboo is seen in many varieties from the giant bamboo of the Assam forests to the puny dwarfs of the dry Deccan forests. Bamboo is useful in many ways as building material for sheds and temporary constructions, for scaffolding, fencing, matting, baskets and pulp. The two main types are Male bamboo and Thorny bamboo.

Male bamboo is used for posts, baskets, walling, roofing, matting and as raw material for making paper. Thorny Bamboo is chiefly used for scaffolding and lately also for making pulp. Thorny bamboo flowers gregariously in about 40 years and dies.

Cane is used for basket work, mats, ropes and furniture. The leading states in cane and bamboo industries are Andhra Pradesh, Kerala, West Bengal, Jammu and Kashmir. In 1971-72 the value of cane and bamboo industrial products exceeded Rs. 2 million.

Grasses form another universal feature of Indian forests. Apart from their use as fodder, they come in handy for other commercial uses as well. *Sabai* grass is used for making paper or rope. *Munj* grass, found mostly in Punjab, is used for thatching and making chairs, baskets and cordage. *Rhe* grass, growing in Assam and Bengal, is used for belting, sheeting, nets and cordage. *Russa Grass* (motia variety) when distilled gives an oil which has over 90 per cent geraniol. Lemon grass yields the famous lemon grass oil *Khus grass* roots when distilled give a well known perfume.

Leaves of forest plants also serve many purposes. Leaves of the climber *Mahul* are used as cups and plates or for wrapping. But by far the most important forest leaf, is the *Tendu leaf*, which is used as wrappers for *beedis* These are mainly found in Madhya Pradesh and Orissa. They form a major item of revenue for the State governments concerned.

Gums are used as mucilage for sizing in confectionery or as medicines The most

Per Capita Income

The per capita income in 1972-73 at constant prices has been estimated at Rs. 337.5- against Rs. 343.6 in the previous year. The estimate for 1970-71 was Rs. 345.8.

The steady fall in the per capita income is attributed to a lower rate of growth in net national product coupled with a little over two percent rate of growth in population.

The "quick" estimates of national income for 1972-73 at constant prices (1960-61), prepared by the Central Statistical Organisation, assessed the net national product during the year at Rs, 19,101 crores.

important gum-yielding trees are *Babul*, *Bijasal Kulu*, *Salai* and *Dhaora*. Of these the gum called *Kareya*, from Kulu trees, is used for mixing with ice creams to thicken them. It is exported and brings in valuable foreign exchange

Resins differ from gums, in that they are soluble in alcohol. The most important resin in India is that of *Chir*. The tree is tapped in Punjab, Himachal Pradesh and UP. The pines yield turpentine, which is now being extracted on a commercial scale.

Katha Industry

Katha is an astringent substance obtained from a species of plant called *Acacia Catechu* locally known as *Khair*. *Katha* is valued as a medicine for digestive troubles It is also used as an ingredient in pain. *Cutch* which is a by product of Katha is an excellent tanning material

About 3000 tonnes of Katha are produced annually in India The leading states are U. P, M. P and Bihar.

Medicinal Plants. There are over 20,000 species of medicinal plants of proven therapeutic value. Indian forests abound in these. They are collected and used as drugs and medicines in the Indian medical system.

Bees' wax and honey found in all the Indian forests, constitute another valuable forest product.

Lac or Shellac, though a minor item from the point of view of bulk is one of the most valuble forest products of India. Lac is the hardened secretion of a tiny insect called *Kerria lacca*, which thrive on certain host trees mainly, *palas*, *kusum*, *rain tree*, *Jalari*, *ber and arhar*. The insects in addition to the resin also secrete a wax, which constitute nearly 5 per cent of the resin. It is mainly cultivated in India and Thailand The principal areas of production are Bihar (51 per cent), Madhya Pradesh (23 per cent), W. Bengal (14 per cent), Maharashtra (5 per cent) and U. P (4 per cent)

The production of stick lac in 1971 72 amounted to 24,560 tonnes, of which 13,347 tonnes valued at about Rs 50 million were exported.

FISHERIES

Scope

India has vast fishing potentialities. It has a coastline of nearly 5,100 km., bordered on the east by the Bay of Bengal and on the west by the Arabian Sea, the two merging at the southernmost tip of the peninsula (Cape Commorin) into the Indian Ocean. The continental shelf of the Indian coast has a total area of about 259,000 sq. km. Beyond the continental shelf, lie the oceanic waters, home of large sharks and rays, and bony fishes like the tuna, the sail-fish and the sword-fish.

The inland fishing grounds are equally extensive consisting of numerous rivers big and small, lakes, backwaters, lagoons, swamps and artificial reservoirs. In the north is the vast Indo-Gangetic river system running through the length and breadth of the great Indo-Gangetic Plain Further south flow other mighty rivers like Damodar, Mahanadi, Godavari, Krishna, Kavery, Narmada and Tapti and a host of lesser rivers. The total length of the rivers in India has been estimated at about 27,360 km. All these rivers, their tributaries and branches, the lakes and backwaters, canals and irrigation channels have an area of 112,650 sq. km. and provide a wide variety of habitat for fishes.

Fish Catch

The fish fauna of fresh and marine waters runs into several hundreds of species. On an average, of a total fish catch of 1.4 million tonnes a year, nearly 1.1 million tonnes come from marine fisheries and the rest (0 3 million tonnes), from inland fisheries.

This is a poor record, considering the total world fish catch of 63 1 million tonnes (1969).

According to a special report of the FAO, the present yield from the Indian Ocean of 2.4 million tons, shared by all the countries fringing the Indian Ocean, could be increased to 14 million tons with the existing technology.

Marine Fisheries

Of the two coastal areas the West Coast along the Arabian Sea is richer in fish wealth than the East Coast along the Bay of Bengal. It is estimated that more than 75 per cent of the total fish landings are from the West Coast.

A survey of pelagic fisheries (free floating fisheries conducted in 1973, on the south west coast between Goa and Cochin. showed that 4 lakh tonnes sardines and 4.5 lakh tones mackerels can easily be caught annually from this area.

Overfishing

In the last two or three years, many fishing companies, in their eagerness to replenish the stock quickly, have resorted to indiscriminate fishing, resulting in over-fishing of the in-shore waters of the West Coast. The eastern waters in the Bay of Bengal, are relatively unexploited.

The important fishes are shark and rays, sardines and anchovies, mackerels, Bombay Duck, Ribbon Fishes, Jew Fishes, Pomfrets, Indian Salmon, Seer fish, Soles, Tunas, and Shell fish, including Oysters, Crabs, Lobsters, Shrimps and prawns.

Estuarine fisheries. The main estuarine fisheries are located in the mouths of the rivers Ganges, Mahanadi, Godavari, Krishna and Kaveri on the East Coast and Narmada and Tapti on the West. The backwaters of Kerala and Chilka and Pulicat lakes are also important centres of fishing In these areas, only such fishes as are accustomed to saline waters thrive. Some of the important specie are some varieties of sardines and anchovies, mullets, cat fishes, and pearlspot.

Chilka Lake needs special mention It is one of the largest open estuarine lakes in India with an area of 906 sq. km. in dry summer. A channel of 23 km. connects it with the Bay of Bengal. It receives most of its waters from Daya, one of the deltaic branches of the Mahanadi The lake contains both marine and fresh water fishes The annual catch is around 3,000 metric tonnes.

Embanked fisheries. These are areas reclaimed from estuarine waters and protected by bunds or walls. The reclaimed area is used for cultivation as well as fish culture. Such fisheries exist on a grand scale in W Bengal and to a lesser extent in Kerala. These areas when not under cultivation are filled with fresh or saline water through sluices The fresh water or saline water as the case may be, brings with it a lot of fish fry which grow up in this protected water and are caught when they reach marketable size. The lands are then brought under cultivation of short term crops, mainly rice

Riverine fisheries. The main species of river fish are carps and cat-fishes of several varieties, feather backs, mullets and fresh water eels.

Marine Fishing

Marine fishing waters are usually divided into (1) *in shore* (2) *off shore* and (3) *deep-sea* waters. According to the Government of India *in shore* covers a depth of 0-10 fathoms, *off shore*, between 10 and 40 fathoms, and *deep sea*, beyond 40 fathoms.

Deep-sea fishing is a novel venture in India. The Indo-Norwegion Project at Quilon in Kerala, with its stations in Veraval, Bombay, Karwar, Mangalore, Cochin, Tuticorin, Mandapam and Vishakapatnam has pioneered deep-sea fishing by supplying boats and equipment and training to the fishermen. Following this, many deep-sea fishing boats are being built all along the east and west coasts Deep-sea fishing promises to become a big enterprise in the near future.

Big business enters fishing. Till very recently, fishing has been a monopoly of old-time fishermen with their country crafts and medium-sized fishing companies in mechanised boats. Both have exploited the in shore waters - the mechanised boats now and then venturing into off shore waters The deep sea has been left practically untouched

From 1970 onwards, marine fishing has attracted, foreign owned business enterprises in India, as well as the big business houses of India. Among the foreign controlled units are *Union Carbide*, *Imperial Chemical Industries*, *India Tobacco*, *Hindustan Lever* and *Britania Biscuit*. Among the Indian house, the prominent are Tata, Birla, J. K, and D. C. M. groups.

Fish Production. India is now one of the ten leading countries of the world in fish production. The production of fish in 1972 is estimated at 18.41 lakh tonnes of which marine production accounts for 11 06 lakh tonnes, and inland production 7.35 lakh tonnes. Total production in 1971 was 18.45 lakh tonnes consisting of 11.55 lakh tonnes of marine and 6.90 lakh tonnes of inland fish. Decrease in the seasonal pelagic fisheries, i. e.. sardines and mackerels affected marine production to some extent in 1972. However, the introduction of additional mechanised boats during the year averted a substantial fall in marine fisheries.

Export. The main itemes of export are (1) Frozen prawns (2) Frozen frog legs, (3) Frozen lobster tails (4) Canned prawns, (5) Dried fish, Dried prawns, shark fins and maws

The export of marine products marked a further rise in 1972-73. Against an export of 35,523 tonnes of fish valued at Rs. 44.55 crores in the year 1971-72, export of fish products during 1972 73 is expected at 39,000 tonnes valued at about Rs. 60 crores.

Inland Fisheries

The First Seed Committee in 1963 reported that there are 4,054 million acres of cultivable water areas in the country. The easily reclaimable water area amounts to as much as 1,575 million acres. Only 61.30 per cent of this area in the country is presently utilised for fish culture.

The main programme for inland fisheries is the construction of nurseries for raising quality fish seed. Nearly 1,068 hectares of nursery have been constructed in 1971-73.

Pearl fishery: The traditional site for pearl-fishing in India is the Gulf of Mannar on the East Coast. T Nadu Government has encouraged the revival of pearl-fishery in this area. Pearl-fishing is controlled by government, two-thirds of the catch being taken up as government share The window pane oysters whose shells are used for decoration are found in the open sea off Coromandal coast, Madras coast and Cochin coast

Fish Products. Besides being an item of food, fish yields several by-products such as fish-oil, fish-meal and fish manure The most important is fish-oil extracted from sardines and shark-liver oil. Sardine oil is used in the manufacture of paints, soft soaps for softening hides and tempering steel. Shark-liver oil is an excellent substitute for cod-liver oil as a source of vitamins A and B. It is being manufactured by Maharashtra, T. Nadu and Kerala Government. Some Indian fish like salmon and jew fish and cat-fish yield isinglass valuable in the clarification of wines. Bombay, Madras and W. Bengal are the main centres of trade in this commodity. Fish scraps are converted into fish-meal which provides excellent food for poultry. Fish waste is converted into fish manure. Fish curing is a supplementary trade. The chief methods of fish-cure are sun-drying and salt-curing, either by dry or wet process.

Fifth Plan

The fifth plan provides a total outlay of Rs. 160 crores for fisheries. The target fixed is a total of 80.8 lakh tonnes fish, consisting 20.25 lakh tonnes of marine fish and 10.55 lakh tonnes of freshwater fish.

POWER

Sources of Energy

The sources of energy in India, have been classified under 4 heads. (1) Energy contributed by humans and animals (living energy) (2) by animal and vegetable wastes like cowdung fuel (non commercial energy) (3) by coal, oil and electricity (commercial energy) and (4) Atomic energy. Atomic energy is a class by itself. The energy contributed by the first three sources has been converted into equivalents of coal and works out as under in India.

Table 86

Sources (1965-66)	*Million tonnes (coal equivalent)*	*Per cent*
i Living Energy	124.6	39.1
ii Non-commercial energy	100.0	31.4
iii Commercial energy:		
(1) Thermal Power based on coal or oil	9.3	2.9
(2) Hydro power	12.0	3.8
(3) Oil (used as such)	18.5	5.8
(4) Coal (used as such)	54.0	17.0
Sub-total (group iii)	93.8	29.5
Total	318.4	100

Distribution of power sources. Of the commercial sources of power, India is poor in oil, but rich in coal and water-power. India's water-power resources have been estimated at 41 million kW. at 60 per cent load factor (equivalent to an annual firm energy generation of 216,000 kWh) and coal reserves at 106,000 million tonnes. These resources are, however, quite unevenly distributed in India.

While Kerala, Karnataka, J&K, Assam, H. Pradesh, and NEFA have abundant hydro-electric power but little or no reserves of coal, W. Bengal and Bihar have large reserves of coal, but very little hydro-power. On the other hand, States such as A P, M P, Maharashtra, U P and Orissa have both hydro-power and coal resources. Considering this uneven distribution, it was suggested by the National Development Council, that all future power generation should be selected on a regional basis, and not on a state basis. This is the basis on which the Fourth Plan has proceeded.

Regional Planning. The regions demarcated are the following: (1) Northern region, consisting of Punjab, Haryana, Rajasthan, U P, J & K, Delhi, Himachal Pradesh and Chandigarh (2) Western region, comprising Maharashtra, Gujarat and M P (3) Southern region comprising

A P, Karnataka, T. Nadu and Kerala (4) Eastern region, consisting of W. Bengal Bihar and Orissa (5) North-eastern region comprising Assam, Nagaland, Meghalaya, Manipur, Tripura and Arunachal Pradesh.

All India Grid. The pattern of power development in India is as follows. The States of Karnataka, Kerala, Punjab, Orissa and J & K develop mainly hydro-power; Bihar, W. Bengal, Gujarat and Rajasthan mainly thermal power, Maharashtra, T. Nadu, A P., U P, Assam and M P are partly thermal and partly hydro. The ultimate form of power supply will be an All India Grid of inter-connected hydro electric and thermal power stations in all the regions.

Ten Year Plan. Starting with the peak demand of 11.3 million kW. as recorded in 1970-71 and allowing for a future growth of 12.5 per cent per annum, the 10 Year Plan envisages a peak demand of 36.5 million kW in 1980-81.

The regionwise programme of additions to the installed generating capacity as envisaged is as follows:

Table 87

Region	*Installed capacity by 1970-71 (MW)*	*Additions during the decade (MW)*		*Installed capacity by 1980-81 (MW)*
		Continuing schemes	*New schemes*	
Northern Region	3.7	4.1	6.6	14.4
Western ,,	3.8	1.9	6.3	12.0
Southern ,,	4.1	3.1	5.8	13.0
Eastern ,,	3.3	1.4	5.3	10.0
North Eastern Region	0.2	0.24	0.56	1.0
Total Utilities†	15.1	10.74	24.56	50.4
Non-Utilities††	1.3	—	0.30	1.6
Total	16.4	10.74	24.86	52.0

---

† Utilities-Generating capacity for sale.

†† Non- Utilities - Generating capacity for self-use.

Per Capita Consumption

Compared to other advanced countries, per capita consumption of electricity in India is quite poor as the table below shows. The per capita consumption in India rose from about 90 kWh in 1970-71 to about 93 kWh in 1971-72.

Table 88

Per Capita Consumption--Electricity 1969

country		*kWh*
USA	(1969)	7013
UK	,,	3700
USSR	,,	2628
France	,,	2408
Yugoslavia	,,	1000
India	(1971)	90

Source: Commerce, July 12, 1971.

Sectorwise Consumption. The pattern of electricity consumption during 1969-70 has not undergone any appreciable change from that during the last decade. Of the total sale, 72 per cent is accounted for in the industrial sector. The level of consumption in all sectors has been generally maintained. Agricultural consumption has been going up significantly being about 10 per cent in 1971-72

Hydro Power. The power potentialities of the Indian river basins are estimated to be of the order of 4 crores kw. at 60 per cent load factor as follows; (1) West-flowing rivers of the Western Ghats—43 lakh kw. (2) East-flowing rivers of Southern India - 86 lakh kw. (3) Ganga Basin-48 lakh kw. (4) Brahmaputra-125 lakh kw. (5) Indus-66 lakh kw. Total 411 lakh kw.

The power generation from hydro-electric plants varies from year to year depending on the availability of water. The hydro projects are usually designed on the basis of water availability for 90 per cent of the time. In so far as hydro plants are concerned, there are no serious problems except in Sharavathy. Rihand and Machkund stations where the actual generation has been less than the designed potential, due to poor inflows.

Table 89

Hydro Electric Projects

Station	Installed Capacity (MW)	Designed firm energy potential GWh Annual	Actual Annual energy production (GWh) 1973-74
Andhra Pradesh			
Machkund (3×21+3×17)	114	735	561
Upper Sileru (2×60)	120	386	449
Kerala			
Pallivasal (3×7.5+3×5)	38	285	161
Sengulam (4×12)	48	182	166
Pannian (2×15)	30	148	70
Neriamangalam (3×15)	45	239	259
Sholayar (3×18)	54	233	247
Sabarigiri (6×50)	300	1160	1220
Madhya Pradesh			
Gahdhisaga, (5×23)	115	366	506
Ranapratapsagar(4×43)	172	500	584
Jawaharsagar (3×33) +	99	316	394
Maharashtra Tata Hydro (6×22+12×12)	276	1350	1348
Koyna (4×60+4×75)	540	2150	3864
Karnataka			
Siva & Shimsha (4×6+6×3) (2×8+1×1)	51	272	218
Jog (4×18+1×12)			
Sharavathi (8×89 1)	120	4400	4215
Orissa			
Hirakud I & II (5×24+4×37.5)	270	1055	1050
Punjab			
Bhakra-Nangal (5×90+5×120+4×24+2×19)	1204	3554	5804
Jogindernagar (4×12)	48	158	239
Tamil Nadu			
Pykara-Moyar (2×7+1×6+2×14+2×11+3×12)	106	451	523
Mettur &Mettur Tunnel (4×10+4×50)	240	613	781
Periyar (4×135)	140	500	464
Kundah (4×20+5×35+2×60+1×50)	425	1745	1677
Uttar Pradesh			
Rihand (6×50)	300	900	574
D. V- C. (Hydro) (2×2+3×20+1×40)	104	246	N.A.

+ First two units commissioned in 1972-73 and the third unit in 1973-74.

Thermal Plant

The capacity of a thermal plant is determined by a number of factors, such as the need for annual maintenance of boilers, uniformity in load conditions, forced outages, etc. Thermal stations, in an inter-connected system may be expected on an average to generate 4500 G. W. A. per kw. But even this average is not obtained at the Thermal Stations.

The table below gives the installed capacity, from energy capability and actual generation firm the major thermal stations above 10 M. W. capacity.

Table 90

Thermal (Coal Based) Projects

Name of the States/ Union Territories	Installed capacity (MW)	Firm energy potential (million KWh)	Actual energy generated in 1972-73 (million KWh)
Andhra Pradesh			
Hussain sagar	12.50	56.75	23 68
Nellore	30 00	135.00	232 88
Ramagundam 'A'	37.50	168.75	112.73
Ramagundam 'B'	62.50	281.25	173 56
Kothagudam	240.00	1080.00	1473.19
Erragade (Gas)	20.00	9.00	23.36
Assam			
Chandrapur	30.00	135.00	2.40
Namrup (Gas)	69.00	310.50	249 02
Bihar			
Barani	145 00	652.50	666.83
Patratu	400.00	1800.00	1279 96
Gujarat			
Porbander	15.00	67.50	59.73
Kandla	16 00	72.00	51.31
Sikka	16.00	72.00	68.73
Utran	67.50	303.75	418.62
Shapur	16 00	72.00	64.40
Dhuvran	534.00	2403.00	2298.46
Dhuvran (GAS)	54.00	243.00	182 00
Bhavnagar	16.60	74.70	71.10
Ahmedabad	217.50	978.75	1401.37
Haryana			
Faridabad (New & Old)	20.75	93.38	84.07
Jammu & Kashmir			
Kalakote	20.75	93.78	25.00

Maharashtra			
Ballarshah	22.50	101.25	121.57
Bhusawal	62.50	231.25	397.10
Paras	92.50	416.25	506.70
Khaparkheda	120.00	540.00	621.65
Nasik	280 00	1260.00	1494 38
Parli	60 00	270.00	345 00
Chola	96.00	432.00	205.00
Trombay	337.50	1518.75	2264 99
Damodar Valley Corporation			
Bokaro	247.50	1113.75	809.84
Chandrapura	420 00	1890.00	2112.97
Durgapur	290.00	1305 00	1011 89
Madhya Pradesh			
Nepanagar	17.00	7 65	13.78
Amarkantak	60 00	270.00	443.10
Korba I	100 00	450.00	405.20
Korba II	200.00	900.80	1692 90
Satpura	312.50	1406 25	1411 90
Orissa			
Talchar	50 00	1369 60	638 70
Punjab			
Pong	0 00	4 50	13.00
Rajasthan			
Jaipur	15.50	6.98	8 77
Tamil Nadu			
Bhasin Bridge	90 00	405.00	333.82
Ennore	340 00	1530.00	591.95
Neyveli	600 00	2700 00	1944.05
Uttar Pradesh			
Mainpuri	10 00	45.00	37 64
Gorakhpur	15 00	67 50	83.72
Mao	15.00	67 50	70.08
Faizabad	15.00	67.50	79 43
Aishlag	12·00	54 00	
Talkatora	10.00	45 00	55.21
KESA	75 00	337.50	388 23
Panki	64 00	288.00	346.48
Harduaganj (A)	90.00	405·00	429·70
Harduaganj (B)	210 00	945.00	850.60
Obra	350.00	1575·00	1369 80
Murdnagar (Gas)	12·50	5.62	1.08
West Bengal			
Gouripur	35.00	90 85	81.89
Bandel	330,00	1485 00	1523.72
Durgapur Project	285.00	1282.50	747 91
Delhi			
Rajghat A & B	44.60	100.70	155.51
Rajghat 15 MW	15,00	67 5	
Indraprastha Extn.	187.50	1084.70	1298.30
Indraprastha	36 60		

Power Planning

Power Planning in India has consistently fallen short of targets. The First Plan showed a 30 per cent shortfall. The second and third plans also ended in shortfalls between 30 and 40 per cent. The Fourth Plan ending in 1973-74 showed the poorest performance. Against a planned target of 9250 m. w, the capacity created in the Fourth Plan, was only 4260 m. w - well below fifty per cent. The Fifth Plan power programme is an ambitious one It seeks to add 16.55 million kw to the installed capacity of about 18.5 million kw (at the end of the Fourth Plan) thus making up a total of over 35 million kw. at the end of the Fifth Plan. It remains to be seen how far the targets of the Fifth Plan will be kept up

Power Supply 1972-73

In 1972-73, India faced the biggest power shortage, since independence Almost the whole of the country was hit by the power crisis, the only exceptions being Kerala, MP, Himachal Pradesh and Delhi.

1973-74

In 1973-74, power supply again failed In the northern region the shortage was assessed as follows Haryana 24%, Punjab 18 and UP 21. In the southern region, Andhra Pradesh fell short by about 13% Karnataka, by nearly 14 per cent and Tamil Nadu by about 15 per cent. In the western region, Goa suffered a deficit of 20 per cent. In the eastern region D. V. C area and North Bengal suffered shortages of roughly 18 and 15 per cent respectively. In the north-eastern region, Lower Assam, ran short by as much as 30 per cent.

Reasons for Shortage

In 1972-73, the government conveniently blamed the poor monsoon for the shortage. In 1973-74, the monsoon could not be blamed. It became clear the abiding malady of our power supply, was mainly due to inefficient administration, poor maintenance of power stations and all-round corruption.

Transmission loss

Heavy transmission loss has also been cited as a contributory cause of shortages. But no explanation has been offered why India should suffer on an average nearly 19 per cent transmission loss, whereas, the maximum transmission loss in other countries, never exceeded 10 per cent.

Rural Electrification

Rural Electrification has been highlighted, as one of the prize projects in planning To supply light and power to all the villages, scattered throughout India, is no doubt a laudable project, but with the transmission losses that we are incurring now, the project is obviously bad economics. However, the government is so set on the project, that a special corporation has been set for the purpose.

Rural Electrification Corporation 'Rural Electrification Corporation was registered in July, 1969 as a private limited company under the Indian Companies Act, with a capital of Rs. 150 crores. The major portion of its capital (Rs. 150 crores) consists of grants from PL 480 Funds. The Corporation, which will be an autonomous body under the Union Ministry of Irrigation and Power, will use the fund for (i) financing rural electrification schemes in priority areas in the States, (ii) subscribing to special rural electrification bonds to be issued by the State electricity boards and (iii) providing block capital loans to rural electric co-operatives to be organised in different States.

The total number of villages electrified as on Feb. 28, 1973, is 134,160 out of 5,66,878 villages The number of pumpsets, energised or proposed to be energised by March 1973 for irrigation purposes is 24,35,000.*

Atomic Power

The Atomic energy Department, originally drew up a Ten Year, Scheme which envisaged the generation of 2700 m.w. of nuclear power by 1980 The first nuclear station to be built under the scheme, was the Tarapur Atomic Power Station. This station was commissioned in October 1969. The 400 MW Tarapur station has two light water reactors, using enriched uranium It was built by the International General Electric Company USA. The station generated 4.590 million units of electricity up to March 31, 1972.

Source: *Commerce March, 16, 1974.*

Two nuclear power stations are now under construction. Both are of the CANDU † type using heavy water as a moderator and coolant, and natural uranium as fuel.

The Rajasthan Atomic Power Project at Rana Pratap Sagar in Rajasthan will have two units of 200 MW each. This Station is being built with Canadian assistance The first unit is expected to be commissioned by the beginning of 1972, while the second is expected to be completed by the end of 1974.

The Madras Atomic Power Project at Kalpakkam near Madras will also have two units of 200 MW each. This project is being engineered and built entirely by Indian engineers and scientists It will have an indigenous consent of about 80 per cent. The first unit is expected to be completed by 1975 and the second by 1976.

The Narora Project in UP will have two units of 235 m. w. each. This is yet to be constructed.

Support facilities. The heavy water required for these and further nuclear power station will be produced by indigenous plants, three of which are being built. These plants, located at Kota in Rajasthan, Baroda in Gujarat and Tuticorin in T. Nadu are expected to be completed during 1973-75.

The Atomic Energy Department has revised the entire programme in 1974. The second unit in Rajasthan, scheduled for completion in 1972 is now expected to be completed only in 1970. The deadline for the first Kalpakam Unit is shifted to 1977.

---

* *Source:* Writter answer in Lok Sabha April 10, 1973.

† Of Canadian design

MINERALS AND METALS

MINERALS of various types appear to have been mined and used in India from very early times. The ancient Indians excelled in metallurgy, as the rustless iron pillars of Asoka testify. In mediaeval India, metallurgy had become well developed. India was self sufficient in both ferrous and non ferrous metals. The slag heaps of iron and steel and slags of metals like zinc, lead, copper and gold, and to a smaller extent, silver and cobalt found in certain parts of Rajasthan and Bihar provide ample evidence of a flourishing metal industry in the past. Of course, the ancients were content to exploit only the small easily accessible deposits of metals that were common in those days. Minerals such as coal, oil chrome ore, manganese, mica, ilmenite etc. were almost untouched till the end of the 18th century, when European businessmen in India set about exploiting them

Wide range of minerals

The mineral resources of India today are extensive and cover a wide range of substances. But some vital minerals are totally absent in India The available minerals themselves are quite unevenly distributed over the country. Bihar and Orissa are the leading States of India in mineral wealth They contain the largest concentration of ore deposits. such as iron, manganese, mica, and coal. M P comes next with good reserves of iron and manganese ores, coal, limestone and bauxite. T. Nadu has workable deposits of iron, manganese, mica, limestone and lignite Karnataka produces fairly good quantities of iron, porcelain clays, chrome-ores and gold. Kerala possesses extensive mineral sands of strategic importance, containing ilmenite, monazite, zircon, rutile, and garnet in workable quantities. Rajasthan has recently emerged as a great producer of non-ferrous metals -copper, lead, zinc, uranium, mica, steatite, beryllium and precious stones like aquamarine and emerald. AP has sizable quantities of second grade coal and several other industrial minerals. Gujarat and Assam provide the entire supply of petroleum products. Assam, including Nagaland and Meghalaya, Has important reserves of coal, sillimanite and other minerals. W. Bengal's mineral resources are confined to coal and iron. Kashmir, has coal, aluminium -ore, sapphires and some other industrial minerals. UP, Punjab and Haryana have not yet appeared as producers of any valuable mineral

The occurrence of minerals in India varies greatly. In some minerals, India is among the leading producers in the world. These are *iron-ore, mica, rare earths, titanium-ore and thorium-ore*. In some others India has sizable export surplus like *bauxite, corundum, magnesite, manganese-ore, monumental granite, natural abrasives, kyanite* and *sillimanite, silica* and *steatite.*

India has sufficient quantities for its own use of the following minerals: *Alum, aluminium, antimony, arsenic, barytes, building stones, raw materials for cement, chrome ore, coal, feldspars, fluorides, glass, sand, gold, gypsum, industrial clays, limestone* and *dolomite, marble, mineral pigments, precious* and *semi-precious stones, sodium salts* and *alkalis, uranium, vanadium* and *zircon.*

In short supply or totally absent are the following: *Asphalt, bismuth, cadmium, graphite, lead, mercury, nickel, cobalt, phosphates, platinum, potash, silver, sulphur, tin, tungsten* and *zinc.*

The following table shows the mineral reserves and internal consumption.[1]

Table 91

Minerals

A—Abundant known reserves
B—Sufficient „
C—Insufficient „
D—Nominal or no reserves

Mineral	*Consumption in 1969* ('000 tonnes)
Antimony C ..	0.64
Arsenic D	0.01
Asbestos B (Tremolite) .. .	4.3
Asbestos C (Chrysotile) ...	N A.
Bauxite B	1017
Barytes B	71
Bentoite A	12*
Bismuth D	0.02
Beryl B	N.A.

For a detailed analysis of the occurrence of minerals in India, See *Manorama Year Book* (1973).

1966 production

N. A. Figures not available

Borax D	10
Cadmium D	0 008
China clay B	101
Coal (non-coking) A	71000
Coal (coking) B	17000
Cobalt D	0.13
Chromite B	193
Corundum C	0.45
Copper (ore) C	510
Copper (metal) C	5–8
Cryolite D	6*
Diamond B	N.A
Dolomite A	1263
Felspar A	31
Flourspar C	6
Fireclay B	436
Fuller's earth B	4
Garnet A	2
Gold C	0.003
Graphite C	1.1
Gypsum B	1334
Ilmenite A	8*
Iron ore A	26673
Kyanite A	81
Lead (ore) C	83
Limestone B	22.072
Manganese ore A	2000
Magnesite B	293
Mercury D	0 22
Mica A	18
Monazite A	N.A.
Molybdenite D	0.02
Nickel C	0.033
Platinum D	0.001
Ochre A	32
Petroleum C	11.534
Phosphates C	662
Potash D	N. A.
Pyrites B	42
Quartzite A	390
Salt B	3900*
Steatite B	74*
Sillimanite A	4
Vanadium B	(unexploited
Silver C	80
Sulphur D	294
Tin D	0.2
Tungsten C	0.2
Zinc (ore) C	44
Zinc metal C	55
Zircon A	0.11*

Mineral Production in India

The total value of the minerals produced in India (excluding atomic minerals and common salt) rose from Rs. 466 crores in 1969 to Rs 507 crores (estimated) in 1972.

The Minerals and Metals Trading Corporation

(M. M. T. C)

The Minerals and Metals Trading Corporation was formed as a government owned private limited company under the Indian Companies Act, in 1956. It took over the minerals and metals export from the State Trading Corporation on Oct. 1, 1963. Its primary purpose is to promote the exports of mineral ores. At present, iron ore constitutes the principal export. Other items include, manganese ore, ferro manganese, coal mica and minor ores. On the import side, the Corporation has been entrusted with the import of such commodities in the field of nonferrous metals, stainless steel, fertilisers and raw materials for fertilisers.

The Corporation contributed Rs. 104 crores or 5.6 per cent of the total exports of India, in 1972-73, namely Rs. 1850 crores. In imports, its share was Rs. 238 crores in 1972-73, which amounts about 10 per cent of the total imports of the country.

Table 92

Exports and Imports of Principal Minerals

	Total *1971-72*	 *1972 73*
Exports		
Iron Ore (Lakh tonnes)	209	214
do (Value Rs crores)	111.8	112.7
Manganese Ore		
('000 tonnes)	1185	923
(Value Rs. crores)	10.7	9.5
Imports		
Copper ('000 tonnes)	56.2	N.A.
Lead (,,)	35.2	N.A.
Zinc (,,)	69.6	N.A.
Tin (,,)	1787	N A.

Table 93

MMTC's share in exports of India

(*Rs crores*)

Year	*Total exports from India*	*Exports by MMTC*	*Percentage of MMTC exports to total exports*
1965-66	806	41	5.0
1966-67	1,156	63	5.5
1967-68	1,199	71	5.9
1968-69	1,358	80	5.9
1969-70	1,413	91	6.4
1970-71	1,535	105	6.8
1971-72	1,605	87	5.4
1972-73 (Provisional)	1,850	104	5.6

Table 94

Mineral Production in India

(During the Calendar Years 1969, 1970, 1971 and 1972*)

Sl. No.	*Mineral*	*Unit*	*1969*	*1970*	*1971*	*1972 (estimated)**
1	Apatite	Tonnes	9,316	15,997	11,307	10,647
2	Bauxite	'000 tonnes	1,085	1,374	1,517	1,653
3	Chromite	,,	227	274	273	282
4	Coal	Million Tonnes	75.41	73.70	71.50	74.38
5	Copper ore	'000 tonnes	511	518	666	787
6	Dolomite	,,	1,283	1,148	1,320	1,340
7	Gold	Kilograms	3,062	3,241	3,656	3,324
8	Gypsum	'000 Tonnes	1,391	926	1,088	1,080
9	Iron Ore	Million Tonnes	29.57	31.37	34.26	34.53
10	Kyanite	'000 tonnes	84	121	63	68
11	Lead Concentrates	Tonnes	3,300	3,880	4,262	4,616
12	Lignite	'000 tonnes	4,188	3,545	3,660	3,070
13	Lime Stone	Million Tonnes	22.52	23.84	25.07	25.36
14	Magnesite	'000 tonnes	298	354	296	293
15	Manganese Ore	,,	1,486	1,702	1,841	1,610
16	Mica Crude	,,	18.5	16.6	14.9	13.8
17	Petroleum (crude)	Million Tonnes	6.72	6.81	7.19	7.59
18	Phosphorite	'000 tonnes	69	156	232	218
19	Steatite	,,	177	159	176	167
20	Zinc Concentrates	Tonnes	13,781	15,888	15,855	16,954
21	Others (Value)	Rs. Million	447	459	503	576†
22	Total Value Excluding atomic minerals & common salt	,,	4,662	4,863	4,949	5,069†

---

* The estimates for 1972 are based on actual data for 11 months on pro rata basis except coal and petroleum (crude) for which estimates are based on 10 and 9 months respectively.

† Includes broad estimates for 'Minor minerals' since the actual figures for 1972 are not yet available.

Source: *Report of Ministry of Steel & Mines 1972-1973.*

Table 95

Metals Production

Sl.	*No.*	*Name of Industry*	*Unit* *No. of existing Units*	*Tonnes* *April 1972 March 1973*
I.	1	Aluminium	4	175,642
	2	Antimony	1	892
	3	Copper	1	12,596
	4	Lead	1	1,820
	5	Zinc	2	23,511
II.	1	Aluminium Foils	3	5,805
	2	Aluminium Extruded Products	4	12,842
	3	Aluminium sheets/circles	15	49,303
	4	Aluminium Wire Rods for ACSR/AAC Conductors	13*	104,009
	5	Brass/Copper Pipes & Tubes	3	2,319
	6	Brass/Copper Rods, Sections, Bars etc. (extd) including Arsenical Copper Rods	9	7,338
	7	Brass/Copper sheets and circles	18	19,820
	8	Brass/Copper wire for non-elect. purposes	3	1,700
	9	Electrolytic Copper Wire Rods	3	25,876
	10	Lead Pipes/Tubes	1	122
	11	Lead sheets	4	1,300
	12	Zinc Sheets/Strips (highly polished photo-engrave type)	1	614
	13	Non-ferrous Alloys such as Antifriction Bearing Metals, Bell Metals, Bronze, Gun Metal, solders etc.	13†	35,000†

* The Aluminium Corporation of India are using the wire rods for their cable manufacture. As such, their capacity and production are not included.

† Estimated.

Source: Ministry of Steel and Mines, Report. 1972-73.

INDUSTRIAL POLICY

Mixed Economy 1948

IN the first flush of independence, India opted for a mixed economy. The industrial policy announced on 6th April 1948 envisaged an economy where public and private enterprises co-operated. The public sector reserved to itself monopoly rights in certain departments of industry like arms, atomic power, railway, transport etc. Other fields were left open for the private sector.

The Industries (Development and Regulation) Act 1951

The Act provides for control and regulation of all industries in India Under the Act, all new and existing undertakings and any substantial expansion and manufacture of new articles by existing concerns are required to be licensed.

The Licensing Policy, adopted under the Industries (Development and Regulation) Act of 1951, has been subjected to severe criticism ever since its inauguration in 1951. The policy, intended to stimulate development 'on the right lines' was caught in red tape and eventually operated as a brake on development. The right lines' more often than not, ended up as the wrong ones. Besides, the opportunities it provided for patronage by the executive, opened the gates of corruption in high quarters.

Mixed-up Economy 1956

In 1956 when the Congress Party decided to establish a socialist pattern of society in India, the 1948 resolution was revised and a new policy was announced on April 30, 1956. Under this policy, industries were divided into two groups-Schedule A and Schedule B The industries in Schedule A would be entirely state-owned; those in Schedule B would progressively become state-owned Non-scheduled industries were left to the Private Sector, but public enterprises were free to enter this sector, if and when the Government so desired. This has converted the *mixed economy* of India into what Prof. K. T. Merchant has called *"a mixed-up economy"*.

Stray Thoughts

In 1969 the whole gamut of economic policy was subjected to a shock treatment. The Prime Minister, Mrs. Indira Gandhi, presented a note to the Congress Working Committee, at Bangalore. She described the note as "some stary thoughts, rather hurriedly dictated."

Though known subsequently as the *10 point Programme*, the note contained more than 20 points, advocated by the Young Turks in the Congress Party. These points related to all sectors of the economy. The note was adopted *in toto* by the Working Committee on July 9, 1969. The policy, which emerged from this note, plainly bore the twin marks of its birth – 'stray thinking' and 'hurry'.

Radical Socialism. The ten-point programme was unanimously approved by the All India Congress Committee on July 13, 1969. The AICC urged the Government 'to take necessary steps expeditiously'. Expeditiously enough, in another six days' time, fourteen leading banks of the country were nationalised by a Presidential Ordinance (July 19, 1969). Radical Socialism had come

Revision of Licensing Policy. On the 18th July 1970, the licensing policy was drastically revised. The object of the revision was to give effect to the recommendations of the Industrial Licensing Policy Inquiry Committee (The Dutt Committee) and the Monopolies Inquiry Commission The new licensing policy sought "to assign definite roles and areas of operation, to different categories of entrepreneurs"

Industrial production was divided into the core sector (basic and strategic industries), the middle sector and the delicensed sector. The middle sector was divided into two categories, the heavy investment sector (with capital of 5 crores or more) and the middle sector (capital between one crore and 5 crores) All industries requiring less than one crore investment were classified as delicensed.

Under the new policy, large industrial houses, controlling a capital of more than Rs. 35 crores were 'cramped, cribbed and confined' by various restrictions, while small scale industrialsts were given favoured treatment, 128 items of industry being reserved for them.

The revised policy, also introduced the concept of a joint sector in industry in accordance with the recommendations of the Dutt Committee. As a first step towards joint sector, all public lending institutions were required to convert their loans to private companies into equity shares (of the borrowing companies) so as to enable the Government to have an effective voice in their management.

The Monopolies and Restrictive Trade Practices Act—1969

This Act which came into force on 1st June 1970, places a number of restrictions on big units with a total capital of 20 crores or over, in regard to appointments of directors, expansion of business and amalgamations or merges. Whatever may be the theoretical merits of the Act, it is another spanner thrown into the works and will certainly delay, if not retard industrial development.

Big business. Since 1970, big business had been the bogey of the Government and the target of constant attack. The Report of the Monopolies Commission provided an opportunity for the Government to open its attack on big business. The Commission in the course of the report referred "to the wide-spread hatred of big business" in the country, but pointed out that "what little development there is (in India) owes much to the adventure and skill of a few men, who have in the process, succeeded also in becoming big business." Big business, the Commission said "may be relied upon to make an important contribution to *industrial development in the crucial years* to come".

The Government was more interested in the popular hatred of big business, than in the contribution, they had made or could make to the development of the country. It set about to cash in, on this popular sentiment by starting a crusade against big business. "Some of our measures do not by themselves reduce disparities" said Mrs. Gandhi at a press conference in Bombay on Aug. 16, 1972 "but something taken away from the powerful creates confidence" in this context is merely a euphemism confidence for cheap popularity.

Revision of the Licensing Policy The Licensing policy was again subjected to revisions in Feb, 1973. The revised policy showed that "the government leadership is still tied up in knots, over the substance and direction of its industrial policy.'.* *The Eastern Economist* described the 1973 policy as a mixed bag The policy was particularly restrictive of big houses, that is, any industrial house, having assets of Rs. 20 crores or more, the previous limit being Rs. 35 crores. Small and medium entrepreneurs and co-operatives were again the favourites. The new policy confirmed the joint sector concept. On the whole the policy attempted to instil confidence in the Private Sector, and coax them into grater production, while keeping up the Government's radical stand. But the permissions and prohibitions, in respect of the Private Sector, were hedged in by so many 'ifs' and 'buts' that it. was hard to decide what was pemitted and to what extent. This policy, known as Selective Licensing

Impact of the Licensing Policy

R. Venkataraman, one time member of the Planning Commission said in a speech at the Rotary Club Madras, that the industrial policies pursued by the Government of India, since 1967 were responsible for the recurring shortages, industrial stagnation and the mounting unemployment in the country.

The constitutional ideal of preventing concentration of wealth in a few hands, has been distorted to bring about changes in licensing which have proved harmful to the nation. The real trouble is that the Government's industrial policies have ceased to be promotional and have become propagandist.†

Streamlining Industrial Policy

On Nov. 1, 1973, the Ministry of Industrial Development streamlined the procedures for industrial licensing. It was decided that all applications will have to be disposed of within 90 days Those that required clearence under the M R T. P. Act were to be disposed of in 150 days.

In 1973, the applications received numbered 3280, as against 2851 in 1972, 2932 in 1971 and 3033 in 1970. In accordance with the new streamlining policy, 3540 cases were disposed of in 1973, compared to 2252 disposals in 1972 This marks a significant improvement in the disposal of applications.

Issue of Licenses

The total number of letters of intent and industrial licenses issued during 1973 were 899 and 596 respectively This was at about the same level as in the year 1972 in which the corresponding figures were 877 and 563. Of the 596 industrial licenses issued in 1973, 224 were direct industrial licenses and the balance of 372 were conversions of letters of intent into industrial licenses Out of the 899 letters of intent, 473 were for new undertakings and the balance were for new articles and substantial expansions. The major industrial sectors for which letters of intent were issued are chemicals (182), electrical equipment (98), industrial machinery (84), metallurgical industries (79), transportation equipment (63) and textiles (57).

---

* Balraj Madhok,

† See *Eastern Economist Oct. 20, 1972.*

INDUSTRIAL DEVELOPMENT

Modern Industry in India

The British occupation of India had progressively destroyed Indian industries in metallurgy, textiles, handicrafts, building materials, chemicals, pharmaceuticals etc. No doubt, the Indian industries which disappeared were the village industries of the ancient type, that depended on traditional skills and inherited technology. The credit for modernising Indian industry goes to the Britishers, though not to the British administration in India.

The year 1850 may be regarded as the watershed, which marked India's entry into modern industry. Pioneer attempts at starting various industries were however made earlier These pioneers were mostly Europeans. The first Iron-smelter was established in Madras in 1815, the first cotton mill near Calcutta, in 1818, and the first coal mine at Raniganj in 1820. The first coffee plantation was opened in 1823, and the first rubber plantation in Kerala in 1900. Jute, already a well-established cottage industry was modernised in 1854 and the first cement plant was set up in Madras in 1904.

None of these first attempts survived long. A second generation of pioneers, almost all of them Indians, laid the foundations of modern industry in India. Among these pioneering ventures were, Bombay Spinning and Weaving Company (1854), Bengal Iron Works (1854), Tata Iron and Steel (1907) and Rally (Paper) Mills (1870). Industrial growth, however remained slow and hesitant. By the end of the First World War, India had only a handful of industries—coal, cotton, textiles, jute, cement, paper, iron and steel, coffee and tea. Production was moderate and limited, even nominal in many cases.

Post War Growth. After the First World War British administration paid more attention to Indian industries. The policy of protection, started in 1922, gave a fillip to industrial growth. As a result many new industries came up and the industrial structure expanded considerably. From 1925 to 1946, consumer industries predominated in India.

By 1950 India had some well established industries. These included textiles, jute goods, sugar, tea, vanaspathi (hydrogenated vegetable oils), soap, footwear, paper and paper boards, plywood, cement, salt, glass, industrial alcohol, matches iron and steel.

Post-Plan Growth. Since 1951 when the First Plan began, India, not only expanded its capacities in all the industries already existing in 1950 but also made good beginnings in a host of other fields like heavy engineering, plant and machinery, drugs and pharmaceuticals, electrical equipment and farm inputs such as tractors, fertilisers and pesticides.

By 1965-66, when the Third Plan ended, the proportion between consumer goods and capital goods, changed radically. Consumer goods, declined from 68 per cent in 1950-51 to 34 per cent in 1965-66, while the production of capital goods, increased from a mere 8 per cent in 1950-51 to 22 per cent in 1965-66.

Overall Growth—1950—70

The growth of Indian industry though commendable, is not commensurate with its potentialities. The maximum annual growth rate registered by the Indian industrial economy was about nine per cent, in the early sixties. This is quite insignificant, when we consider that other developing countries, much smaller than India and less advantageously placed, like Taiwan, Israel and Thailand have shown an average growth rate around fifteen per cent.

Recession. The period between the end of 1965 and the beginning of 1968 was a period of wide spread recession in Indian industry. The economy showed all the basic symptoms of recession—absolute decline in production, decelerating growth rates, inventory accumulation of finished output, increased underutilisation of installed capacity and reduction in investment and employment. Industrial output reached its lowest point towards the end of 1967. †

Recovery. Industrial production which had suffered a major set-back during 1966 and 1967 began to recover in 1968. The progress of recovery continued with accelerated tempo during 1969. There was a marked increase in the output of most industries in 1969 which included consumer goods industries and intermediate products. The gains in these sectors were, however, moderated to a certain extent by a decline in the output of mill-made cotton cloth and a much steeper decline in the output of jute manufactures. The increase in industrial output was reflected in the Index of Industrial Production (1969 equal to 100) which recorded an increase of 7.1 per cent over the previous year. The rate of increase was slightly higher than the increase of 6.4 per cent registered in 1968 and was in sharp contrast to the decline in 1966 and 1967.

---

† The slow-down in the growth rate is partly due to statistical reasons. There has been some transfer of units to the small scale sector, without corresponding adjustments for the past years.

Relapse. In 1970 71 the growth rate declined to 3.6 per cent In 1971 72 it declined further to a mere 3 per cent. The causes for this decline are obvious. The most important cause is the persistent shortage of necessary inputs. Steel had been in short supply because our public sector steel plants have failed to produce up to targeted capacity. Power shortage was frequent, again, a consequence of faulty planning and of course, careless management. A number of commodities was in unstable supply--sugarcane, oil seeds, rubber tyres, staple fibre, soda ash, polyethelene, cement etc. There was finally the capacity bottle neck in industries like automobiles, scooters, tractors, wrist watches, paper, newsprint, non-ferrous metals, dry and storage batteries etc. This was in part due to the failure of the government to issue licences in time and in part to the failure of the licensees to install the licensed capacity. Under utilisation of installed capacity was another factor that had dragged down industrial production. In this, the public sector led the way.

Certain intangibles have accentuated the operation of these specific factors Among them may be mentioned the interminable crusade against private enterprises indulged in by the government and the reckless take over of running private concerns.

Nationalisation

There is no doubt that one of the main factors that has inhibited development was the sense of uncertainty in the private sector. The apprehensions of the private sector were so great that J.R.D. Tata had gone so far as to ask the Government, whether it wanted the private sector at all

The nationalisation programme which started with the bank nationalisation in 1969 followed by nationalisation of general insurance. In industry, as such, it started with the nationalisation of the foreign owned Indian Copper Corporation in March 1972. The Indian Iron and Steel Company came next in July 1972. The coking coal mines-214 of them-were taken over in Aug. 1972 and non-coking coal mines (464 in number) in Jan. 1973.

The reasons advanced by the Government for nationalisation were as varied as they were inept. Coking Coal mines were nationalised in order to conserve depleting resources and to modernise machinery. The Indian Copper Corporation was taken over for development, which may mean anything. The Indian Iron and Steel Company was nationalised, because it was grossly mismanaged and was producing only up to 60 per cent of its capacity—although Durgapur, managed by the Government had never been able to go up to even 60 per cent of its capacity The non-coking coal mines were taken over for equally inept reasons, or rather for no reasons at all. "This reckless nationalisation" wrote *Commerce* "has helped only the politicians and bureaucrats to amass further power and pelf, it certainly does not help the millions of poor, with even a morsel of bread or a glass of clear drinking water".

Benevolent Socialism

It would only be fair in this context, to point out that the nationalisation craze had its benevolent aspects too. Under a Presidential Ordinance on Oct. 31, 1972 the Government took over 46 sick cotton mills and handed them over to the National Textile Corporation. The Minister for Foreign Trade, L. N Mishra said, "this was a major step taken by the Government to ensure the health of the textile industry, which was *so important to the common people*". "It would enable over 1.1 lakh workers to keep their jobs in these mills".

The government, has struck to its policy of playing the Good Samaritan by taking over more and more sick mills under its protection. By Sept. 1974 the total number of sick mills taken over increased to 103.

All these sick mills were nationalised and brought under the National Textile Corporation by an ordinance in Sept. 1974. The nationalisation of the 103 mills will at one stroke make the National Textile Corporation the largest single enterprise in this sector though it will be assisted by some subsidiary companies, possibly the State Textile Corporations.

In terms of employment, these mills with 1.63 lakh workers on their rolls will account for nearly one-fifth of the labour force engaged in the textile industry, while their annual production potential is one-fourth in fabrics and 22 per cent in yarn.

Although, the taking over of the sick mills was originally motivated by welfare considerations, their nationalisation has been prompted by other considerations. The textile policy of the government was not working out smoothly. For instance, the government wanted the mills to manufacture 'Standard Cloth' at the regulated prices for mass consumption. The mills were making standard cloth, but there never was enough of it. The nationalisation of the sick mills would make the government, a substantial producer of textiles and thus enable it to achieve the main objects of its textile policy. The main objectives of the textile policy are (1) to maximise employment (2) to provide adequate supplies of cloth at controlled prices to the masses (3) and to earn more foreign exchange through exports. The Prime Minister, in her speech at Ahmedabad on Nov. 8, 1974 told the millers that "the government was determined to ensure that the production of standard varieties of cloth reached 800 million metres this year".

Industrial Production

Industrial Production during the calendar year 1973 has been stagnant, although there has been a welcome increase in the output of many public sector undertakings, particularly in the area of equipment manufacture. The official index of industrial production (prepared by the Central Statistical Organisation) recorded a marginal decline of 0.8 per cent during the first six months of 1973 (January—June), as against a growth rate of 7.4 per cent achieved during the first six months of 1972. Shortage of power has been a major factor in the decline in industrial production with severe power cuts in force in many parts of the country, affecting production in a wide range of industries. In terms of major industrial groups, production in the first half of 1973 indicates a marginal increase in respect of mining and quarrying (+1.4 %), relatively stagnant conditions in the entire group of manufacturing industries and a decline of 6.2 per cent in electricity generated.

Table 96

Index Numbers of Industrial Production 1970, 1971, 1972 & 1973 (Jan—April)

(Bases: 1960 = 100)

Groups	*Weight*	*1970*	*1971*	*1972*	*Jan—April*		*Percentage change in*		
					1972	*1973*	*1971* *1970*	*1972* *1971*	*Jan—April 1973* *Jan—April 1972.*
1 2	3	4	5	6	7	8	9	10	11
General Index (crude)	100.00	180 8	186.1	199.4	198.7	198.3	+3 0	+7.1	—0.2
I. Elect. generated	5.37	334.0	358.5	390.7	392.8	360.3	+2.3	+9.0	—8.1
II. Mining and quarrying	9.72	149.0	153.4	164.2	167.9	171.7	+3.0	+7.0	+2.3
III. Manufacturing	84.91	174.8	178.9	191.4	189.9	191.1	+2 3	+7.0	+0.6

1974

"Prospects for industrial production in 1974" according to the *Economic Survey, 73-74*, "continue to be somewhat uncertain, at least for the first few months. The power shortage has so far given no signs of having come to an end, though improvement was expected after the good monsoons."

"An encouraging factor with regard to the industrial situation is the improved agricultural performance which will help to remove some of the constraints under which industry has been operating in 1973. The output of major agricultural raw materials in 1973-74 is likely to be substantially higher than in the previous year, though in the case of oilseeds the position continues to be tight. In general, the agro-based industries (which account for about half of the weight of the Official Index) should perform well in 1974 if power cuts and labour unrest do not inhibit production. Similarly, the metallurgical industries can be expected to expand output provided the handicap of power shortage is overcome."

THE PUBLIC SECTOR

Constituents of the Public Sector

The Public Sector is an omnibus term which comprises all economic enterprises owned or operated by the Government. Among them are departmental undertakings like the Railways, Statutory Corporations like the Damodar Valley Corporation, Financing Institutions like the Film Finance Corporation, Public utility undertakings like Transport and Electricity and limited companies incorporated under the Indian Companies Act.

Emergence of the Public Sector. Before Independence, private companies controlled the overwhelming majority of industrial and commercial undertakings in the country. The significant exception was the Railway. These private firms, were mostly promoted and controlled by *Managing Agents*. The Managing Agency System (as it was known) was mainly responsible for the postwar development of Indian industry and commerce.

With Independence, the State came into the picture. The 1948 resolution on economic policy envisaged a mixed economy in which both the public sector and the private sector co-existed. But with the 1956 resolution on economic policy, the State in the name of socialism emerged as the leader of national economy.

Growth of the Public Sector[1]. In 1956-57 the public sector investment was only Rs. 81 crores. In 1972-73 it had increased some 62-fold, rising to Rs 5,051 crores. The mission of the public sector in the national economy was spelt out in the Fourth Plan "Taken as a whole, the public sector investment would strengthen the control of Government over the commanding heights of the economy".

The share of the public sector undertakings in the total gross domestic product increased from 1.5 per cent in 1960-61 to 3.4 per cent in 1968-69, of net domestic product from 1.2 per cent (1960-61) to 2.8 (1968-69) and planned investment from 15.8 per cent in the First Plan to 51.06 in the Third Plan. Later figures are not available. But the figures at present available, show that the public sector has come out, as a formidable factor in the national economy in a very short interval.

One of the foremost arguments advanced in support of state enterprise was the desire of the government to earn profits, so that a large share of the investment could be supported by its own income. In 1956, Eugene Black, the President of the World Bank had written to the Government of India, stating "India's interest lies in giving private enterprise, both foreign and Indian, encouragement to make its maximum contribution to the development of the economy, particularly in the industrial field" T. T. Krishnamachari, then Financial Minister, replied that state enterprise was to be preferred, for more reasons than one. He made the claim, which now looks sadly ridiculous, that "the short experience we have had with state enterprise, leads us to believe that they can often be more efficient than private units".

Even though investment in public sector has not thrown up the much needed surpluses for expansion, the government continued the same policy, with a vengeance, as it were. It has now become clear that the public sector is a drag on the national economy. As Raj K. Nigam, who was once in charge of the Bureau of Public Enterprises put it, "the nation has to pay a heavy price for the policy.

The net loss of all the undertakings, under central control was Rs. 14.42 crores in 1971-72. Since the total investment in these undertakings was estimated to be Rs. 5052 crores as on March 31, 1972, it implied that a big share of the savings of the people collected during the last 20 years had been invested in ventures which had become-when considered together-a dead weight. In the private sector investment of this order would have earned a profit of a minimum of Rs. 400 crores which would have been instrumental in accelerating the growth of the industrial and commercial sectors.

A majority of the public sector undertakings are well past their gestation periods. Only seven of them-the largest being Bokaro Steel Ltd. are under construction The total investment in them at the end of 1971-72 was Rs. 773.54 crores. Surely, no return on this investment could be expected. But it was the inefficient management of 35 enterprises, led by Hindustan Steel Ltd., (HSL), which more than wiped out the total net profit of 58 of them which were not in the red.

---

[1] For a full list and a description of Public Sector undertakings, See *Manorama Year Book—1973*.

Among the money-spinners in the public sector, the petroleum companies topped the list with a total of Rs. 49.87 crores, Indian Oil Corporation Ltd. made the largest contribution at Rs. 29.97 crores. The industrial and commercial concerns—26 in number—won over the second rank with a total net profit of Rs. 26.89 crores, Hindustan Aeronautics being the leader (profit Rs 4.78 crores). The seven trading corporations yielded a profit of Rs 10.70 crores, bulk of which came from the State Trading Corporation of India Ltd. (Rs. 4.65 crores) and the Minerals and Metals Trading Corporations of India Ltd. (Rs. 4.47 crores). Both of them were able to present more than-comfortable balance sheets because of increasing canalisation of imports and the monopolistic position that they enjoyed in this regard

Table 97

Total Investment		*(Rs. crores)*	*No. of enterprises*
As at the commencement of the fourth Five Year Plan	(31-3-69)	3902	85
As at	31-3-1970	4301	91
As at	31-3-1971	4682	97
As at	31-3-1972	5052	101

Source: Report of the Bureau of Public Enterprises for 1941—72.

It is now being argued that the primary object of the public sector is service and not profit. The Report for 1971–72 states that but for the charges of township maintenance and social overheads which claimed Rs. 32.5 crores, the public sector would have shown a net profit of Rs. 13.5 crores. Even assuming that this is true the profits work out at a little over quarter per cent on 5,000 crores. Such a rate of return can hardly be regarded as profit, much less cited as such. In any case, this is an afterthought, and deserves little notice.

Table 98

Profits or Losses Made by Undertakings—Group wise

(Rs. in crores)

Category	*1971-72* *Net Profits*	*1971-72* *Net Losses*	*1970-71* *Net Profits*	*1970-71* *Net Losses*
1 Hindustan Steel Ltd.	—	45.63	--	4.51
2 Petroleum	49.87 (7)	—	36.84 (7)	—
3 Industrial and Manufacturing Concerns	26.89 (26)	62.90 (22)	19.35 (23)	65.65 (23)
4 Trading Concerns	10.71 (7)	—	3.16 (4)	—
5 Commercial and Miscellaneous	10.97 (13)	8.78 (8)	15.04 (11)	6.58 (9)
6 Promotional and Developmental undertakings	1.21 (5)	1.30 (4)	0.58 (7)	1.09 (2)
Total	99.65 (58)	118.61 (35)	74.97 (52)	77.85 (35)

(The figures in brackets indicate the number of undertakings)

Public Sector makes good

The 1972-73 report on the working of the public sector units, presented to the Parliament, rings a welcome change in the fortunes of the Public Sector. For the first time in its history, the public sector enterprises have shown a profit of nearly 20 crores. *This not* much to talk about-as profits go, because it represents a return on an investment of about Rs. 5570 crores till the end of March 1973.

"The heartening aspect", as Commerce observes "is that the performance of the public sector is not a flash in the pan. It represents a firm trend, the beginning of a process of increasing output and return". According to the Director General of the Bureau of Public Enterprises the public sector collectively is expected to increase its net profit to about Rs, 30 crores in financial year (1973-74) and raise it to an impressive Rs. 200 crores this year (1974-75).

Details are now available of the 1973-74 performance of the 14 public sector undertakings under the charge of the Union Ministry of Heavy Industry, which are in production currently. In aggregate, the undertakings are expected to show for the year 1972-73, a profit of Rs. 9.34 crores, as against a loss of Rs. 13.51 crores in the previous year. Thus, there has been turnround of approximately Rs. 23 crores in the profitability of these undertakings. The undertakings are: (1) Bharat Heavy Electricals Limited (BHEL); (2) Heavy Engineering Corporation Limited (HEC); (3) Bharat Heavy Plates and Vessels Limited (BHPV); (4) Mining and Allied Machinery Corporation Limited (MAMC) (5) Triveni Structurals Limited (TSL); (6) Bharat Pumps and Compressors Limited (BPCL); (7) Tungabhadra Steel Products Limited (TSP); (8) Machine Tools Corporation of India Limited (MTCI); (9) Hindustan Machine Tools Limited (HMT); (10) Indian Consortium of Power Projects (ICPP); (11) Jessop and Co Ltd; (12) Braithwaite & Co. (India) Ltd; (13) Richardson and Cruddas Ltd; (14) Gresham and Craven (India) Private Limited. The fifteenth such undertaking-Scooters (India) Ltd. is yet to go into production

The tentative projections about the profitability of the above undertakings in the current financial year indicate that their aggregate profit would go up to about Rs. 30 crores, as against about Rs. 9.34 crores last year.

Table 99

Output of Heavy Industrial Units*
(1972-73 and 1973-74)

(Rs crores)

Project	Actual Production 1972—73	Actual Production 1973—74	Percentage growth
BHEL	145.00	228.00	58
HEC	49.00	62.42	27
BHPV	4.60	8.82	92
MAMC	14.30	17.75	22
TSL	2.80	4.50	61
BPCL	Not in production	0.067	—
TSP	2.10	2.28	9
Jessop & Co	16.20	24.03	48
Braithwaite	8.90	11.05	24
Richardson & Cruddas	4.47 (July '72 to April '73)	6.70	50
Gresham & Craven	0.84	1.05	26
MTCI	1.10	1.51	37
HMT	31.20	40.38	31
Total	280.71	408.557	46

---

* ICPP figures are not available.

Departmental Undertakings

Departmental undertakings form an important segment of the Public Sector, though there is much less ostentation and fanfare about them. Besides, they are generally not shown as public enterprises. There are at present 17 undertakings managed by different departments of the Central Government. Their position as at the end of the fiscal year 1972-73 is shown below.

Table 100

Industrial Undertakings run departmentally by the Central Government

(in lakhs of rupees)

Serial No.	Name of Undertaking	Capital invested upto end of 1973	1972-73 Net Profit
1.	Railways	371,880	1,240
2.	Post and Telegraphs Department	34,213	3,999
3.	India Security Press	678	50
4.	Currency Note Press	659	100
5.	Overseas Communications Service	1,750	349
6.	Light Houses and Light Ships	1,274	28
7	Delhi Milk Scheme	734	115
8.	Forest Departments Andamans	924	64
9.	Electricity Department Andamans	59	16
10.	Electrical Sub-Division Laccadives	27	5
11.	Security Paper Mill	1,057	22
12.	Neemuch Opium Factory	233	446
13.	Ghazipur Opium Factory	425	376
14.	Ghazipur Alkaloid Works	—	40
15.	Electricity Department Chandigarh	362	13
16.	Tarapur Atomic Power Station	8,830	55
17.	Electricity Department Dadra and Nagar Haveli	31	2
	Total	423,136	6,352

Source: Eastern Economist

THE PRIVATE SECTOR

The Private Sector comprises all non-governmental or private companies. It is so described in contradistinction to the public sector, which is made up of governmental companies. The private sector is governed by the *Indian Companies Act* 1956.

Indian Companies (Amendment) Act 1969

The Act was passed by both Houses of Parliament in May, 1969. It received Presidential assent on May 28, 1969.

The Amendment provides for two things:

(1) Abolition of the Managing Agency System. The managing agency system provides for a small group of entrepreneurs undetaking the flotation, and management of Public limited companies, in return for a fixed and/or proportionate payment from company funds This system was in operation from British days and had substantially contributed to the development of Indian industry in various fields. However, the managing agency system tended to concentrate economic power in the hands of a small number of entrepreneurs and to perpetuate it. The Amendment seeking the abolition of the institution of managing agency and secretaries and treasurers (which is only another term for managing agency) is intended to combat the perpetuation of monopoly trends in industry. Under the Amendment Act the managing agency system will stand abolished as from April 3, 1970

From April 3, 1970 companies having managing agent or secretaries and treasurers have to switch over to alternative forms of management. Most of the companies have preferred to appoint the nominees of the erstwhile managing agents as Managing Directors or whole time Directors. Some companies have appointed managers from outside. All these appointments have to get the sanction of the Company Law Board, in the Department of Company Affairs.

(2) Prohibition of Company donations to political parties.

As from May 28, 1969 corporate companies are prohibited from making contributions or giving donations to political parties.

The Indian Companies (Amendment) Act 1972

The Indian Companies Act is one of those legislative enactments, that have been so frequently amended and so vastly altered from time to time, that the existing Act, has nothing in common with the original Act, except the name. Now, further Amendments of a sweeping nature have been brought in by the Companies (Amendment) Bill 1972.

One crucial amendment seeks to classify companies with a paid-up capital of Rs. 25 lakhs or more and a turn over of Rs. 50 lakhs and above, as public companies Once such companies are declared public companies, they cannot borrow, or invest, appoint a managing director, whole-time director, or a selling or a purchasing agent, or any person above a salary of Rs 3,000/- without the permission of the Central Government. Under another amendment (Section 408) the Central Government has reserved to itself the right to appoint any number of directors to the Board which means that the shareholders have no powers left to elect their own directors and run their business Amendments to Sections 17, 18, 19, 79 and 141 remove the jurisdiction of the courts and make the Government of India, the supreme authority in all matters covered by the original sections. Penalties for breach of the provisions of the Companies Act, have been made so rigorous that the amended Act would read like an abridged edition of the Indian Penal Code. In effect, therefore, the amended Companies Act, converts all sizable private companies into a virtual department of the Government of India The Private Sector, in future will be private sector in name but public sector in fact. Nothing is left to the discretion of the board or the shareholders. Every move, every action, every appointment, every contract would require the approval of the Central Government. In future, therefore, only small and medium sized companies, that is, those companies with a paid up capital of less than Rs. 25 lakhs and a turn over of lees than Rs. 50 lakhs, will remain in the so-called private sector.

The Corporate Sector includes all companies and associations incorporated under the Indian Companies Act—both in the private sector and the public sector.

Companies at work. As on 30th September, 1972, 33,768 Joint Stock Companies Limited by shares with an aggregate paid-up capital of Rs. 4,998 crores were at work in the various States and Union Territories of India. These are 33,400 non-Government companies and 368 government owned companies having a paid-up capital of Rs. 2,680 crores and Rs. 2,318 crores respectively. Of the companies at work a relatively larger number were private limited companies.

Table 101

	Public Sector Companies (Govt. Companies)		*Private Sector Companies (Non-Govt Companies)*	
	No. of Cos.	*Paid-up Capital (Rs. in crores)*	*No. of Cos.*	*Paid-up capital (Rs. in crores)*
Public Limited Companies	112	171.7	6,664	1,822.9
Private Limited Companies	256	2,508.5	26,736	495.0
Total	368	2,680.2	33,400	2,317.3

Public Sector and Private Sector Companies

As on 30th September, 1972 there were 368 government companies with a paid up capital of Rs. 2,680.2 crores and 33,400 non-governmental companies with a paid up capital of 2,317.9 crores. The difference is obvious and glaring. Though private sector companies are ninety times greater in number than public sector companies, their total capital resource were lower by about Rs. 368 crores than those of public sector companies.

But in point of returns, the public sector, in spite of government patronage and preferential treatment and *monopolistic rights** showed negative returns until 1972 while the private sector has shown not only profits but increase in real output. (See also Public Sector.)

This was revealed in two studies of the private sector, made by the Reserve Bank of India, and published in the Reserve Bank Bulletin, July. 1972. The studies comprised 1,501 public limited companies and 701 private limited companies in the private sector for the years 1965-66 to 1970-71. The first study in respect of 1,501 companies has been split into two parts—209 large sized companies and 1,211 medium-sized companies.

Table 102

Real Growth of the Corporate Sector

		Increase in the value of output	*Rise in wholesale prices*	*Real increase in output*
290	large public companies	71.1 (a)	31.2 (a)	29.9
1,211	medium public companies	37.2 (b)	23.3 (b)	13.9
1,501	public companies	44.8 (b)	23.3 (b)	21.5
701	private companies	35.0 (b)	23.2 (b)	11.7

(a) Increase 1970-71 over 1965-66.
(b) Increase in 1969-70 over 1965-66.

Large Companies in Private Sector

The Reserve Bank has made a study of 350 big companies, in the private sector, with a paid up capital of Rs. 1 crore and above, for the period April, 1972 to March 1973.

The study reveals a slow down in the rates of growth in 1972-73,* The rate of growth in the value of production and net sales of the 350 companies studied declined from 11.7 per cent and 11.2 per cent in 1971-72 to 9.1 per cent and 10.9 per cent, respectively, in 1972-73 The rate of growth in the total expenditure (including interest charges) also declined from 12.5 per cent to 10.0 per cent. However, the total expenditure increased faster in 1972-73 than in 1971-72 and as a result, profits before tax declined by 0.3 per cent as against an increase of 2.9 per cent in the previous year.

The rate of fixed assets formation, both gross and net, at 8.9 per cent and 5.8 per cent, respectively, in 1972—73 was higher than the corresponding rate at 7.6 per cent and 3.6 per cent in 1971-72. However, the rate of growth in inventories fell sharply from 15.6 per cent to 7.6 per cent bringing down the capital formation rate, both gross and net, from 9.7 per cent and 8.4 per cent in 1971-72 to 8.5 per cent and 6.6 per cent, respectively, in 1972.73. The companies continued to rely more on internal sources (69.8 per cent in 1972-73 as against 63·7 per cent in 1971-72). Bank borrowings as percentage of inventories declined further from 55 0 per cent to 50.0 per cent.

---

* What profits the Public Sector made came almost entirely from monopolistic rights enjoyed by such concerns as the Indian Oil, S.T.C., and M.M.T.C.

* See *Reserve Bank Bullettin, Feb. 1974.*

SMALL SCALE SECTOR

Definition

For purposes of development, small scale industries were originally defined as industrial units with a capital of not more than Rs. 5 lakhs, irrespective of the number of persons employed. The limit has since been enlarged. In Nov. 1974, the Small Scale Industries Board decided to increase the maximum capital of small scale industry to 10 lakhs.

An ancilliary unit has been defined as a unit that supplies at least 50% of the requirements of any item, to the mother unit. Such ancilliary units can increase their capital to 15 lakhs.

Cottage Industries

India has been famous for its industries from very ancient times. Even in the days of the Indus Valley Civilization some five thousand to six thousand years ago, India had kept up a brisk trade with Sumer, Elam, Ur, Kish and the other advanced countries of the times, in metals, precious stones and other articles. In the mediaeval age. 'the wealth of Ind' had become proverbial in far off countries and "the magnificence of the Court of the Great Mogul had dazzled even eyes which were accustomed to the pomp of Versailles"

Indian artefacts of various kinds filled the markets of the west --gleaming brassware, embroidered shawls, irridescent silks, perfumes, pottery, gold laced cloth. leather, fabrics, gems and gem-studded ornaments. Textiles excelled. Indian cotton and silk textiles by their sheer elegance and utility have continued even to this day, as fabrics of renown. Names of fabrics, like 'Chintz', 'Calico' and 'Khaki' are Indian words that have been anglicised. 'Chintz' is derived from 'chitta' a Dravidian word meaning spotted cloth. The best 'chintz' were made in Golconda, T. Nadu and Gujarat. 'Calico' is plainly reminiscent of Calicut, a town on the west coast of India. 'Khaki', similarly was pioneered by the veteran weavers of the west coast.

With the advent of the British, things changed. The British deliberately set out to destroy the traditional industries. India ceased to be a producer of finished goods and became instead, a supplier of raw materials to British Industry. Western machine-made goods replaced Indian handicrafts. The spread of railway transport and the emergence of large-scale industry in India accelerated the decline of Indian cottage industries.

When India became free, it was decided to salvage this priceless heritage from the junk-heap of history. Fortunately the inherited talents of centuries still functioned in the nooks and corners of rural India and workers skilled in practically all fields of production from weaving to metallurgy could be found all over India. The mission of the small-scale sector is to organise these talents and re-orient them to suit modern conditions,

It estimated that about 2 crores of persons are engaged in cottage industries. The handloom industry alone employs 50 lakh people, or nearly as many as are employed in all other organised industries, including large scale industries, mines and plantations. The work of organising and developing these small scale industries is primarily the responsibility of the State Governments

Plan Outlay

Small scale industries occupy an important place in the Indian economy, accounting at present for as much as 40 per cent of country's total gross production and 30 per cent of the net output of registered factories.

Reservation. In accordance with the Government's policy of broad basing entrepreneurship and preventing concentration of wealth in the hands of a few, several items of production have been set aside specifically for the small scale sector The big houses will not be allowed to enter this area of reserved production.

A total of 124 items are at present in the reserved list. More are likely to be included.

Growth of Small Scale Sector

The growth of small scale industries in the country during and since the Second Plan period has been described as "nothing short of a revolution". A broad indication of the growth of the sector is provided by the number of small scale units registered with the State Directorates of Industries.

Table 103

As on	*No. of units registered with the DIs.*
31—12—1965	1,04,771
31—12—1968	1,70.986
31—12-1969	1,99,401
31—12—1970	2,38,397
31—12—1971	2,81,899
31—12—1972	3,18,169

In 1973, about 400,000 small units were producing goods worth on an average Rs. 48,600 million annually. They offer direct employment to 4.22 million workers. Their output has been increasing at the rate of 11 per cent per year The significant point is that the small scale sector has expanded to non-traditional industries such as pipes, fittings, bolts and nuts and similar mechanical accessories.[†]

Table 104

Small scale units registered with State Directorates of Industries till 1971-72

States/ Union Territory	*Number of units*
Andhra Pradesh	25,920
Assam	2,031
Bihar	16,395
Gujarat . .	19,966
Haryana	10,480
Jammu and Kashmir .	5,779
Karnataka ..	9,949
Kerala . ..	1,618
Madhya Pradesh ..	14,009
Maharashtra . .	23,301
Orissa	2,967
Punjab	30,873
Rajasthan	11,212
Tamil Nadu ..	28,990
Uttar Pradesh .	37,390
West Bengal	29,137
Delhi	10,964
Goa	997
Himachal Pradesh .	5,779
Manipur . ..	672
Pondicherry	457
Tripura .	307
Total	2,89,193

The development of small scale industries in india has been rather lop sided, in two directions. First, quality hadn't kept pace with quantity. C. Subramaniam, Minister of Industrial Development wrote, "Unfortunately, the quantitative growth, of the small sector has not been matched by adequate attention and concern for quality".[‡] Secondly, regional disparities in development are too serious to be ignored. To quote Subramaniam again, "while India has made rapid advances in the past 25 years in economic and technological growth, the fact that industries have tended to agglomerate around a few urban centres and that 65 per cent of the small scale units are located in Delhi, Maharashtra, Punjab, W. Bengal and T. Nadu provides no ground for comfort, whatever "

Industrial Estates One of the major steps in modernising small-scale industries is the establishment of industrial estates. These estates are set up in rural areas. Building, power, transport and all other requirements of a modern industry are provided in these estates. Individuals, corporate companies and co-operative societies are invited to make use of these facilities in the production of such commodities, as are sanctioned by the government

Table 105

Growth of Industrial Estates in India

	1960-61	*1965-66*	*1970-71*
Total No of estates completed	83	283	427
Total No of sheds completed	2,992	6,326	10,317
No of sheds allotted	2,486	4,947	9,100
No. of sheds occupied	2,038	4,562	8,267
No. of sheds working	1,386	3,709	6,413
Employment provided (Nos.)	14,695	54,651	1,05,913
Half yearly production (Rs. lakhs)	650 15	2,510 45	7,742 71

Industrial Co-operatives form another line of development for small scale industries. The number of Co-operatives in the Industrial field in 1971-72 is estimated at 50,300 with a membership of about Rs. 40.4 lakhs and a working copital of nearly Rs.442 crores These include industrial Co operatives of artisans, craftsmen, workers and small industrialists.

The National Federation of Idustrial Cooperatives, which was set up in March 1966, exported up to 30-6-1971, woollen knitwear worth Rs. 44.52 lakhs and nylon knitwear worth Rs. 5.71 lakhs to USSR. Shoes worth Rs. 15.22 lakhs were also exported to Russia through the State Trading Corporation of India Ltd.

[†] K. L. Nanjappa, Development Commissioner, 'Small Scale Industries' in *Economic Times*.

Source: "*Indian Express*", Nov. 4, 1972.

National Small Industries Corporation

This was set up in 1955 to help small scale industries in getting machines, finance and in marketing. The Corporation arranges for the sale of goods produced by small scale industries, canvasses government contracts for them and helps them to get credit from the State Bank of India. The Corporation has also introduced a hire-purchase scheme to help the small scale industries to procure machinery

The Coir Industry

The Coir Board with its headquarters at Cochin was formed by the Govt. of India in July 1954 under the Coir Industry Act, 1953 to promote the development of coir industry. The coir industry originated in Kerala as a cottage industry. For many years Kerala held a monopoly of coir trade But the mechanisation of coir industry (among other things) else where in the world, has adversely affected, this old cottage industry in Kerala. It is to combat this adverse trend and to resuscitate the dying coir industry, that the board has been constituted. The advent of man made fibres in the international market, has made the task of the Coir Board doubly difficult

All India Handicrafts Board

The All India Handicrafts Board was set up in 1962 to improve production and marketing of handicrafts in India. With its headquarters in Delhi, the Board has five regional offices and four design centres to provide assistance in designing and other activities It has 6 pilot centres of training, research, production and development of various crafts. It has also set up a Central Handicrafts Development Centre at Bangalore and a Central Crafts Museum at Delhi. Over 190 emporia have been set up all over India for effective marketing of handicrafts.

The handicrafts establishments produced goods worth Rs 380 crores in 1971—72.

Handloom. Weaving, by handlooms or powerlooms, is the most important of small scale industries and employs about 70 to 80 lakh people. There were about 30 lakh handlooms and 2.83 lakh powerlooms in 1971. Its exports have increased from Rs. 11.60 crores in 1967-68 to Rs. 22.40 crores in 1971 72.

Central Silk Board

Established in 1949 the Silk Board is concerned with the promotion of sericulture and silk industry Four research institutes located in Berhampur (W. Bengal), Channapatna (Karnataka), Titabar (Assam) and Chaibasa (Bihar) undertake experimental work. The Central Silkworm Seed Station works an integrated programme for improving silkworm races and in ensuring supply of high quality basic seed in co-operation with regional hill rearing stations at Srinagar, Coonoor, and Kalimpong.

India produces both mulberry silk and non-mulberry silk. In mulberry silk, India ranks fourth in the world. with an annual production of 1634, metric tonnes, which is 5 per cent of world production. Japan, the world's leading producer of silk produces 60 per cent, China comes next with 22 per cent and Soviet Russia, third with 8 per cent Karnataka has the largest area under mulberry in India and produces about 13 lakh kg. of silk.

The non-mulberry varieties of silk produced in India are *Tasar*, *Muga* and *Eri*. In Tasar silk, India is the world's second biggest producer, the first being China. Bihar has the largest area under Tasar, with MP coming second. Muga is practically a monopoly of Assam and Meghalaya which together produce 72,000 kg. annually. Eri is also a speciality of Assam with production of 72,000 kg. annually.

All India Khadi and Village Industries Commission

The Commission has been formed to encourage the . development of cottage industries, especially khadi The Commission provides assistance to khadi and other village industries through co-operative societies, registered institutions, State governments and statutory bodies set-up by State governments These industries cater to local demands and do not enter into export trade. The performance of the Commission has not been satisfactory. In 1972, the Public Accounts Committee of the Lok Sabha passed severe strictures on the Commission. Production of khadi declined from 848 54 lakh sq. metres in 1965-66 to 567.37 lakhs in 1970-71. The employment potential has also been steadily declining. The trading operations of the Commission resulted in an over-all loss of Rs. 98.7 lakhs for the period 1965-66 to 1970-71.

CO-OPERATION

THE co-operative movement is one of the legacies of the British administration The movement started with the Co-operative Credit Societies Act 1904. It was primarily intended to liberate the Indian villager from the clutches of local money lenders and to promote the habit of thrift among the rural population. The Act gave the co-operative societies some concessions and privileges.

Co-operative Credit Societies

The Co-operative Credit Societies Act of 1904 provided for credit societies only. These started coming up one after the other, all over the country. As quickly as they were started, they began to perish. But the process went on. New societies sprang up as old ones were dying, only to fall one by one like leaves in the autumn.

When India became independent, the co-operative movement was sick and dying. But the Government decided to put co-operation back on its legs Various efforts were made in this direction

The Committee of Direction, appointed by the Reserve Bank of India in 1955 made a comprehensive survey of Co operative credit to agriculture. They made various recommendations "in the Interests of the rural population, generally and the rural producer in particular" Acting on their recommendations, *Service Societies* were started, to take over the work of the existing credit co-operatives, and to expand the co-operative sector into areas, where no co-operative society functioned

The major departure in co-operative credit policy (which came with the Service Societies) was a change of basis on which credit was to be given to the farmer. The authors of the Second Plan elucidated the problems as follows: "In the development of rural credit, perhaps, the greatest difficulty in the past has been that a substantial portion of agriculturists are non-creditworthy, according to rules and conditions for advancing loans, which were generally prescribed. To meet this situation it is proposed that loans should be advanced to societies on the basis of production programmes and anticipated crops".

Poor record of Credit Societies. A review of co-operative movement for 1966-67 and 1967-68 published by the Reserve Bank pin-points the poor performance of credit societies. It is a sad commentary on the co-operative movement, that through the last sixty years, it has remained a spoonfed baby of the Government and despite continual nursing, has not developed vitality enough to grow on its own.

Defects of the Co-operative Movement

A built-in defect of the co-operative set-up in India, is that it is organised on a three-tier system namely primary societies (village level), central or district societies (district level), and apex societies (State level). The result is that with each tier retaining its own pound of flesh, the poor farmer at the village level has to pay higher rates of interest for his credit than what the moneyed businessman pays for his.

Another defect that has frequently been published in the Press, is the intrusion of politics into the co operative sphere. Because co operation enjoys the special patronage of the State, it has attracted a group of persons everywhere, who are either proteges of the Government or supporters of the political party in power. This group refuses to be dislodged.

The All-India Rural Credit Review Committee (August 1969) headed by B Venkatappiah, member of the Planning Commission, says that the intrusion of politics both at the State and village level has vitiated the working of the Co operative societies all over the country. "This often implies that individuals not belonging to particular political parties or factions are virtually outside the scope of co-operative credit".

The report also highlights the uneven development of co operation in different parts of India. Quantitatively co operative credit has grown substantially but some States, notably Assam, Bihar, Orissa, W. Bengal, Rajasthan and J & K have made very slow or insignificant progress. In other areas too, there have been "conspicuous weakness, such as relatively low deposits, markedly high overdues and a general lack of business management".

Major Objective

The major thrust of effort in cooperative development programmes is to reach the benefits of cooperative activities to the weaker sections of the community. This involves a two fold strategy of orienting the general cooperative agricultural programmes like agricultural credit and marketing to benefit these of the community and also of designing special programmes directed to increase employment and income opportunities to different sections of the population like small and marginal farmers, fishermen, tribals etc.

Agricultural Credit Societies

The co-operative agricultural credit is organised on a three tier pattern. At the bottom are the Primary Societies, above them are the District or Central Co-operative Societies. On the top are the State or Apex Societies.

Land Development Banks. Co-operative land development banks constitute the principal institutional source for provision of long-term credit, to farmers for production purposes like land development, minor irrigation and purchase of expensive farm machinery. At present there are 12 State Co operative Land Development/Mortage Banks, one in each State (excepting Manipur, Meghalaya and Nagaland) and one in the Union Territory of Pondicherry having 1696 affiliated Primary Land Development Banks. The number of Primary Land Development Banks branches of State Co-operative Land Development Banks increased during the year by about 300.

There has been considerable progress in the loaning operations of these institutions over the decade. The total loan disbursements rose from Rs- 16.03 crores in 1961-62 to Rs 154.44 crores in 1971 72 and the loan outstanding increasing from Rs. 49.46 crores in 1961-62 to Rs. 786.51 crores in 1971-72. In 1972-73 the total loan advanced are estimated at Rs. 171.89 crores During the year 1973-74 the total loaning operations including ARC refinance are expected to be of the order of Rs. 200 crores making a total of Rs. 852.17 crores

Source of Funds

The Land Development Banks raise resources mainly by floatation of ordinnary debentures in the market. During the year 1972- 73, they floated ordinary debentures to the tune of Rs. 100,10 crores. The programme of floatation of ordinary debentures during the year 1973-74 is Rs. 131 crores.

Primary Credit Societies

The primary credit societies at the village level form the base of the co-operative credit structure. These have to be strong, and well-managed units. But it was found that many of the existing societies, were weak or dormant. The co-operative sphere was therefore reorganised. Better societies took over the weaker ones, and those beyond reconstruction were liquidated.

As a result of this programme, the total number of primary agricultural credit societies in the country has been reduced from 212,000 as on 30th June, 1961 to 1.50 lakhs in June 1973. About 19,000 societies still continue to be dormant and only 50,700 societies (less than one-third of the total) had fulltime paid secretaries. Substantial progress in re-organisation of societies into viable units has been achieved only in the States of Kerala, T. Nadu, Gujarat, M P., Rajasthan and Orissa. Kerala is the only State where the average loan business per society has exceeded Rs 1 lakh (the generally accepted minimum for viability).

At the end of June, 1973, there were 1,57,775 primary agricultural credit societies with a membership of about 34.42 million. These societies covered 95% of the villages in the country, 41% of the rural population and 43% of the agricultural families.

Members

The membership of primary credit societies increased to 34.42 million on 30th June, 1973, with a net addition of 2 42 million new members The coverage of rural population among the States was highest in Punjab (74%) and lowest in Assam (15%). Other States with good coverage were Himachal Pradesh (73%), Tamil Nadu (62%), Karnataka (59%), Uttar Pradesh (50%), Kerala (49%) and Maharashtra (47%).

Co operative Central Banks. The Central Co-operative banks are the crucial middle tier in the three—tier co-operative credit system. Weakness of this middle tier in several areas has impeded the flow of adequate credit to the farmers in those areas. Schemes for rehabilitation of weak central banks, have, therefore, been taken up in Rajasthan, Karnataka, MP, Andhra Pradesh and Bihar.

The total number of central co-operative banks stood at 345 on 30th June, 73. The accepted policy is to have only one Central Co-operative Bank for each district. In some States notably Andhra Pradesh, Assam, Bihar and West Bengal more than one bank, however, still continue to exist in the same district in certain areas The share capital of the Central Co-operative Banks increased by Rs. 14 73 crores to Rs. 172.36 crores as on 30th June, 1973. The State Governments continued to participate in the share capital of central co-operative banks and the share capital provided by them amounted to Rs. 48.74 crores on 30th June 1973, which was nearly 28 per cent of the total share capital of these banks.

Table 106

Progress of Co-operative Credit Movement¶

(Amounts in Rupees Crores)

Type of Institutions	*1970-71*	*1971-72*	*1972-73*†
(a) State Co-operative Banks			
(i) Number	25	26	25
(ii) Owned Funds	92	102	117
(iii) Deposits	279	330	406
(iv) Borrowings from the Reserve Bank of India	242	211	259
(*a*) Of which, short-term agricultural	190	153	155
(v) Working capital	685	731	845
(vi) Loans issued	749	924	1067
(vii) Loans outstanding	534	552	623
(*a*) Of which short-term agricultural	288	348	282
(viii) Percentage of (iv-a) to (vii-a)	66	44	55
(b) Central Co operative Banks			
(i) Number	341	341	344
(ii) Owned funds	199	226	245
(iii) Deposits	439	510	645
(iv) Borrowings from the Reserve Bank/Apex bank	353	358	364
(v) Working capital	1081	1194	1369
(vi) Loans issued	894	1056	961
(vii) Loans outstanding	813	889	955
(c) Primary Agricultural Credit Societies			
(i) Number (in thousands)	161	157	158
(ii) Membership („)	30963	32009	34423
(iii) Owned funds	265	292	237
(iv) Deposits	69	75	77
(v) Borrowings	675	740	N.A.
(vi) Loans issued	578	613	686
(vii) Loans outstanding	784	858	911
(d) State Land Development Banks			
(i) Number	19	19	19
(ii) Owned funds	58	70	97
(iii) Debentures outstanding	725	880	738
(iv) Working capital	841	1016	965
(v) Loans issued	168	146	146
(vi) Loans outstanding	638	729	810

¶ Figures relate to Co-operative Year i. e. July-June.

† Provisional

Source: *R. B. I. Bulletin*

State (Apex) Co-operative Banks

These comprise the highest tier in the co-operative credit system.

Overdues. The high level of overdues at the various levels of co-operative credit structure continues to plague the movement thereby choking the flow of credit. The percentage of overdues to outstandings at the level of the primary societies was 44% by the end of 71-72. It was, however, as high as 80% in Assam, 82% in Manipur, 80% in West Bengal, 63% in Rajasthan, 62% in Bihar and 57% in Orissa. The position at the central co operative banks' level was no better. For the country as a whole, the overdues of the central co-operatives banks stood at Rs. 295.21 crores at the end of June, 73 and constituted 31% of the outstandings. In some states like Assam and West Bengal overdues of the central banks formed more than 60 per cent of the outstandings while in the State of Andhra Pradesh, Bihar, Haryana, Himachal Pradesh, Orissa, Punjab and Uttar Pradesh, is ranged from 40 per cent to 60 per cent.

Marketing Societies

These represent a fast developing sector of Co-operation and include, Marketing Societies as such, and processing, storage and supply Societies

The value of agricultural produce marketed by co-operatives in 1972-73 is estimated to be about Rs. 900 crores, as against Rs. 844 crores in 1971-72

Marketing Operations

At the beginning of the year 1972-73, there were 3240 primary co operative marketing societies covering nearly all the secondary markets in the country, 362 district co operative marketing societies including sugarcane supply societies and 22 State level marketing federations.

Co-operative Sugar Factories

The number of licensed/registered co-operative sugar factories at the end of March, 1973 was 134. During 1973-74, 4 more licenses for establishment of co-operative sugar factories in the district of Jalgaon and Sholapur (Maharashtra), Belgaum (Karnataka) and Krishna (Andhr Pradesh) were granted by the Centr Government. With this, the number cooperative sugar factories licensed/registered increased to 138 and the licensed capacity in the cooperative sector to 28.11 lakhs tonnes, representing about

50 per cent of the total capacity of the sugar industry.

The total membership of 138 co-operative sugar factories was 6.99 lakhs; of this, the grower members were 6.17 lakhs accounting for over 88 per cent of the total membership. The paid up share capital of these sugar cooperatives was of the order of Rs. 84.14 crores of which Rs. 51.22 crores were contributed by the members and the balance by the State Government. The share capital of the grower members was Rs. 46.80 crores, accounting for 55.62 per cent of the total share capital.

Urban Consumer Co operatives

By the end of June, 1973, there were about 400 central-wholesale consumer co-operatives and about 13,100 primary consumer co-operatives, 14 State Federations of consumer co-operatives and the National Co-operative Consumers' Federation at the apex. The central/wholesale stores had also set up about 2050 branches and were running 109 department stores.

The total retail sales of consumers co-operatives during 1972-73 are expected to be about Rs. 300 crores.

Department Stores

The Department Stores deal in a wide range of articles, basic necessities, household goods, drugs and medicines, electrical equipment, watches, cosmetics, groceries, meat and fish.

Generally, there is one department store in a town, except in the case of metropolitan cities where two or more stores have been set up

By the end of June 1973, 109 department stores had been set up, as against 106 stores at the end of June, 1972. The department stores have been set up in most of the towns having population of 1 lakh and above, and, in some cases, even in smaller towns.

The sales turnover of the department stores for the co-operative year ending June, 1973 showed considerable increase compared to the previous year and estimated to be about Rs. 46 crores against about Rs. 35 crores in 1971-72. The progress of the sales turnover during the last 7 years shown in the following statement.

Table 107

Year	Number	*Total sale* *(Rs. in crores)*	*Average sale per store* *(Rs. in lakhs)*
1966-67	38	11.72	31
1967-68	60	22.55	37
1968-69	80	26.00	32
1969-70	101	31.00	31
1970-71	107	33.00	30
1971-72	106	35.00	33
1972-73	109	46.00	42
		(Tentative)	(Tentative)

Source: Ministry of Agriculture-Department of Co-operation

Co-operative Farming Societies

The programme of co-operative farming is directed towards the solution of the problems presented by small and uneconomic cultivators and landless labourers Co-operative farming envisages pooling of land and joint cultivation. In a joint farming society, members owning lands pool their lands and cultivate such pooled lands jointly.

As on 30th June, 1973, there were 9732 cooperative farming societies with a membership of 2.68 lakhs, commanding a total area of 4.88 lakh hectares. Of these, the number of joint farming societies was 5123 with a membership of 1 22 lakhs and commanding area of 2.87 lakh hectares. The number of collective farming societies was 4609 with a membership of 1.46 lakhs and commanding area of 2 01 lakh hectares.

Non-Agricultural Credit Societies

These Credit Societies comprising urban banks, employees' credit societies and others, have proved valuable for mobilising savings.

As on 30th June, 1972, there were 16,091 non-agricultural credit societies comprising urban banks, employees' credit societies and other societies, as compared to 15,346 as on 30th June, 1971. Of these, 941 societies were primary co-operative banks under the Banking Regulation Act, 1949 (as applicable to co-operative societies).

Miscellaneous Societies

The Co-operative movement has spread out into almost all economic activities of the nation, such as dairying, poultry, fishing, forest contract, construction, transport, laundry, electricity, printing, irrigation, housing, insurance and small industries as shown below

1972-73. Dairy 14,338, Fishery 4510, Labour-6177, Forest-1565, Rickshaw pullers-335, other Transport 994 and Printing 288.

TRADE

Administration

A notification of the Government of India, dated 7th Feb. 1973, has at last removed some of the glaring anomalies in the allocation of work between the Ministry of Industrial Development and the Ministry of Foreign Trade. Under this notification the Ministry of Foreign Trade has been given back its old name--the Ministry of Commerce.

The reconstituted Ministry of Commerce has taken over the department of Internal trade from the Ministry of Industrial Development It now consists of two departments—Internal Trade and Foreign Trade. The Ministry of Commerce continues to retain control over what are called export oriented (consumer, industries like synthetic fibres, handlooms, jute and coir fabrics and silk and the plantation industries–generally tea, rubber, coffee and cardamom.

Inland Trade

Regulated Market A substantial portion of India's inland trade is represented by what is officially designated as *internal trade* This includes civil supplies and essential commodities.

Civil Supplies* comprise articles of mass consumption, particularly the following: Foodgrains Vegetable oils, Sugar, Baby foods, Drugs, Soap, Textiles, Matches Kerosene and Diesel oil, Paper and Stationery, Cycle tyres and tubes, Soda ash, Dry cells for torches, Electric lamps, Hurricane lanterns, Milk, Foot wear, Razor blades, Household utensils and Bicycles.

Essential Commodities are goods declared as essential under the Essential Commodities Act, 1955. Under this Act the Government has powers to declare any commodity as essential, at any time The list of essential commodities, notified under the Act, can be increased, reduced or altered from time to time according to the discretion of the Government. In 1973, 59 commodities stood listed as essential commodities under the Act.

The Civil Supplies and Essential Commodities, constitute a sphere of trade. which is strictly controlled and regulated by law. Nevertheless, these goods are produced and marketed through normal trade channels and figure as part of India's inland trade.

Volume of Inland Trade

The Inland Trade of India, inculding the officially designated internal trade is gigantic, compared to which India's foreign trade is small Unfortunately no reliable over—all statistics of the entire inland trade are available. However, in 1947, the planning Commission estimated India's inland trade to be about Rs. 7,000 crores, as against an external trade of Rs. 350 crores. During the last two decades and more, India has expanded its foreign trade more than ten times as the figures indicate. Similar figures however are not available for internal trade. But it can be safely assumed that the expansion of internal trade is proportionately as great, if not greater than that of foreign trade.

The inland trade of India may be classified as rail borne, road borne, river-borne, air borne, and coastal. Of these, no statistics are available about road-borne trade, although it constitutes a sizable portion of inland trade. Air-borne trade does not count for much. Statistics available about rail and river-borne trade and coastal trade are given below.

Table 108

Rail and River-borne Trade

(Thousand quintals)

	1969-70	*1970-71*
Coal and coke	376,438	325,138
Raw cotton	3,774	2,687
Cotton piece goods	1,408	1,104
Rice (not in husk)	22,162	25,156
Wheat	46,451	48,773
Raw jute	4,389	5,727
Iron & steel products	74,989	79,958
Oil seeds	8,668	7,657
Salt	1,956	22,252
Sugar (excluding khandsari sugar)	8,157	10,842

Note: The above statistics relate to quantities only.

Civil Supplies are regulated under the Defence of India Act and Rules, 1971.

Table 109

Coastal Trade

	*1968-69**	*1969-70**
Total Imports **	17,390	18,127
Total Exports	17,300	19,127
Total Trade	34,780	36,254

Source: Department of Commercial Intelligence and Statistics, Calcutta.

* The figures are provisional.

** Imports represent goods loaded into steamers at Indian ports and *exports* goods unloaded by these steamers at India's ports.

Foreign Trade

In foreign trade, the Government of India, had no long-term policy for a number of years. Nor was any importance attached to the deficit trade balance, that India was running since 1939-44. In fact, the last favourable trade balance which India has had, appeared between 1939 and 1944. Thereafter deficit balances started appearing.

Table 110

Year		*Balance of Trade (Rs. million)*
1948-49	.	185.1
1949-50	...	141.9
1950-51	.	49.6
1951-52		237.1
1952-53		124.5
1953-54	.	79.7
1954-55	...	63.9
1955-56		82.5
1956-57	...	236.1
1957-58		473.8
1958-59	..	325.6
1959-60	..	321.1
1960-61	..	479.5

---

* *Source:* Eastern Economist, Annual Number, 1974.

In the 1960's the government appeared to think that this sort of adverse balance, was a game that the country could ill-afford. Steps were therefore taken to increase our exports. But increasing exports was easier said than done. Reducing imports was comparatively easier but this could not be done either as Planning called for extensive imports. So the unfavourable trade balance continued. It was only in 1972-73, that India had a favourable trade balance for the first time since 1950

Asok Mitra, formerly, Chief Economic Adviser to the Government of India, reviewing India's foreign trade policy, observed: "Despite efforts spanning over the past 25 years, the country's exports are still hovering around four per cent of national income......The country's need for imports however has remained constantly buoyant over the period. It is only blanket exchange regulations, which have kept supressed, the demand for importables, within manageable proportions.

"In this milieu, improvisation has been the dominating feature of trade policy... This could scarcely be called a policy, this was more in the nature of a policy of keeping afloat "

"The trade policy during 1972 73", says the Report of the Ministry of Foreign Trade "continued to be export oriented with special emphasis on maximising production for exports and encouraging import substitution. Import policy measures aimed at ensuring adequate supplies of imported inputs for expansion and diversification of export production, as well as for meeting the requirements of priority and small scale industries, particularly those whose growth strengthens the balance of payments. Several measures including financial assistance and incentives, transport facilities, and stream-lining of institutional arrangements were adopted to diversify and expand export",

Money is what money does

If money is what money does, then it is, indeed, 'filthy lucre'.

Money can carry a lot of dirt and disease, according to a scientific survey carried out in the United States. Dr. Berel Abrahams, of the Louisville School of Medicine, tested 150 coins and 50 bank-notes and found that 13 per cent of the coins and 42 per cent of the notes harboured disease-carrying organisms, all of which could cause illnesses. He commented: "The fact that we collected coins from a cross-section of society is convincing evidence that nobody is safe from money sickness."

Nickel in coins is poisonous and constitutes health hazards which elude easy diagnosis, according to the latest medical finding. A sweaty palm clutching the coin may leach the nickel on to the hands and add the poisonous substance to the oral intake.

News Report. June, 1973,
New Delhi.

As from 1973 74 the Government is contemplating long term policies. The Minister of Commerce said on Oct. 3, 1973 that the Government was working out a sound commercial policy, which would be more or less steady, over a period of three or four years. "Unless our buyers are in a position to know our mind, they cannot make up their own minds" he commented. But the question is, does the Government know its own mind?

The government's declared policy of 1972–73, seems to have worked. In 1972-73 "exports recorded an increase of 22 per cent, imports declined by 1.5 per cent and the balance of trade position during the year turned into a surplus of Rs. 164 crores in India's favour against a deficit of Rs. 416 crores in the preceding year".

During the first nine months (April-December) of 1973-74, export continued to increase at the rate of 22 per cent. But as a result of an increase of 44 per cent in imports during the period, India again had an adverse balance of trade amounting to Rs. 94 crores as compared to a surplus of Rs. 164 crores during corresponding period of the previous year.

The substantial gains in exports during 1972–73 were recorded by leather and leather manufactures, vegetable oil and oil cakes and handicrafts. These accounted for almost half of the total increase in exports during the year. The significant increase in the exports of leather and leather manufactures from Rs. 91 crores in 1971-72 to Rs. 175 crores in 1972-73 was mainly because of the tight international supply position and high prices prevailing abroad. Large increase in the exports of oil cakes was also helped by similar factors. Rise in exports of handicrafts was mainly due to larger exports of gems and jewellery.

Commodities which showed a decline in exports in 1972–73 over the level reached in 1971–72 were: tea, jute manufactures, sugar, iron and steel, manganese ore and spices. The exports of jute manufactures declined from Rs. 265 crores in 1971-72 to Rs. 250 crores in 1972-73. Re-emergence of Bangladesh jute industry as a significant supplier to world markets, as well as increasing price competition from synthetics were the factors responsible for this decline.

Table 111

Balance of Trade: 1968-69—1973-74

(Rs. crores)

Year	*Imports (cif)*	*Exports incl. re-exports (fob)*	*Balance of trade*
1968 69	1,908.6	1,357.9	—550.7
1969-70	1,582.7	1,413.3	—169.4
1970-71	1,634.2	1,535.2	— 99.0
1971-72	1,824.5	1,608.2	—216.3
1972 73	1,796 7	1,960 9	*164.2
April-Dec. 1972-73	1,236.7	1,391 0	*154 3
*April-Dec. 1973 74	1,785.0	1,691 3	— 93.7

* Provisional.

Import Policy 1974–75

The government's import policy for 1974 75 was announced on April 2, 1974. The new import policy has been framed in the context of a severe strain on foreign exchange resources of the country, but overriding preference has been shown to provide imported inputs in order to strengthen the base for export production. Government also intends to make available essential imported inputs for industries which are basic to the national economy.

Special facilities for exporters and for small scale industries, greater facilities for units set up in a backward area and for units set up by enginneering graduates and ex-service personnel, a more liberal policy for import of maintenance spares, added facilities for Research and Development, export performance of 20 per cent of production to enable a non priority unit to earn priority treatment, continuance of the scheme of compulsory export obligations, a revised scheme for supplies of indigenous raw materials to exporters and a dominant role for public sector agencies in import trade, are some of the significant features of the new import policy.

RAILWAYS

The Railway System

The Indian Railway system is the biggest in Asia and the fourth biggest in the world. It is also the biggest public sector enterprise in India representing a capital at charge of nearly Rs. 3500 crores. In 1973* it had a route kilometrage of 59,700 more or less equally divided between broad gauge (29,000 km) and metre gauge (25,865 km) with less than 4,500 km. of narrow gauge. It employed 17 lakh persons, including 3.5 lakh casual labour It had a fleet of over 11,000 locomotives—9,200 steam, 1,300 diesel, and 625 electric—with 25,000 passenger coaches, 1765 electric multiple units, and 3.85,200 wagons. It carried about 70 lakh passengers every day, and was ranked third in passenger traffic in the world, the first being USSR and the second, the Japanese National Railways. It carried about 6 lakh tonnes of freight daily as much as the Japanese National Railway and the British Railways put together. It runs 10,000 trains a day and operates over 700 stations.

Evolution of the Indian Railways

The first railway in India as also in Asia was opened by the Great Indian Peninsular Railway Company (now the Central Railway) formed in England. The company took up the survey in 1850. In about 3 years the work was completed and the first train steamed out of Bombay on April 16, 1853 The train ran from Bombay to Thana - a distance of about 33 kms. A new chapter in the history of India was thus opened.

The development of Indian railways owes much to Lord Dalhousie who became the Governor General of India in 1848. It was he who suggested a system of trunk lines connecting the hinterland of Bombay, Bengal and Madras Presidencies with their principal ports and with each other. But the Government had neither the funds nor the technical personnel to undertake the work. So the work was entrusted to private companies who were guaranteed a return of 5 per cent on their capital for a period of 25 years and free land needed for the railway. In return the companies were expected to share their surplus profits with the government and to sell the railway to the government after 25 years.

But the expected profits failed to materialise and the guaranteed interest continued to be a drain on government resources. So the Government purchased the railways on the period of the expiry of the contract, though the companies continued in management. Following the recommendations of the Ackworth Committee the Government took over the management of the bulk of the railways in 1922. In 1964 railway finances were separated from general finance.

The 1920's were a period of expansion for the railways. New lines were taken up. In 1925 electric traction was introduced. The first electric railway was opened on February 5, 1925 from Victoria Terminus to Kurla. Then followed bad days for the railways with the depression of the 30's and the Second World War. The Partition of India in 1947 made matters worse.

Partition

The Partition left India with 54,151 km. of railway line while Pakistan got 11,066 km. What came as India's share was distributed among Provinces and 500 and odd Princely States. It was in fact, a ramshackle railway organisation shared by 42 different units of varying sizes some of them managed by the Government of India, some by Princely States and some by private companies. The old Princely State of Sangli for instance owned a mere 7 km. of railway, while the Nizam of Hyderabad managed 2,335 km. With the accession of the Indian States to the Union of India, 10,672 km. of railways, belonging to different Princely states, were integrated with the government railways in 1950.

Railway Zones

After the re-organisation of the States, the railway network was grouped into six zonal administrative units—Central Railway, Eastern Railway, Northern Railway, North Eastern Railway, Western Railway

---

Figures relate to 1973 and are based on an article by B. S. D. Baliga, Chairman of the Railway Board. *"Indian Express"*, Jan. 26, 1973.

and Southern Railway. In 1956 a new unit South Eastern Railway was formed from the Eastern Railway. In 1958, the North-Eastern Railway was divided to form another new unit, North East Frontier Railway. Thus in 1958 there were 8 railway zones Some 8 years after, in 1966 a ninth zone was added—South Central Railway. This was carved out of the former Southern & Central Railways, and comprises the Secunderabad & Sholapur divisions of the Central Railway and Vijayawada and Hubli divisions of the Southern Railway.

Table 112

Railway Zones

Zone	*Date of creation*	*Consisting of the former*	*Head-quarters*	*Track width*[1]	*Mean route Kilometrage worked (Mar. 31, 1968)*
Southern	April 14, 1951	Madras and Southern Maharashtra, South Indian and Mysore Railways.	Madras	B.G.	2,321
				M. G	4,795
				N. G.	157
Central	November 5, 1951	Great Indian Peninsular, Nizam's State, Scindia and Dholpur Railways	Bombay	B. G	4,665
				M. G	383
				N. G	984
Western	November 5, 1951	Bombay, Baroda & Central India, Saurashtra, Kutch, Rajasthan and Jaipur Railways.	Bombay	B. G	2,849
				M. G.	6,191
				N G.	1,202
Northern	April 4, 1952	Eastern Punjab, Jodhpur, Bikaner three upper divisions of the East Indian Railways.	Delhi	B G	6,885
				M. G.	3,322
				N G.	260
North-Eastern	April 14, 1952	Oudh and Tirhut Railway and Fatehgarh district of Bombay Baroda & Central Indian Railways.	Gorakhpur	B. G.	52
				M. G.	4,907
Eastern	August 1, 1955	East Indian (minus the three upper divisions) Railways.	Calcutta	B G.	4,013
				N. G.	119
South-Eastern	August 1. 1955	Bengal Nagpur Railway with minor adjustments.	Calcutta	B. G.	5,043
				N. G.	1,479
North-East Frontier	January 15, 1958	Assam Railway with minor adjustments.	Maligaon (Gauhati)	B. G.	645
				M. G	2,900
				N. G	87
South-Central	October 2, 1966	Portions of Southern and Central Railways.	Secunderabad	B G.	2,606
				M. G.	3,183
				N. G.	370

Track width: B. G 1.677 metres; M. G. 1 metre; N G. 0-72 and 0.610 metre.

Railway Administration

The railways are under the direct charge of the Minister of Railways. The Minister is assisted by a Railway Board. The Board consists of a Chairman, a financial commissioner and three members The Secretary General to the Ministery of Railways is the ex-officio Chairman of the Board. The financial commissinor and the three members are of the status of secretaries to the government and are in charge of finance, staff, transportation and engineering. The Railway Board is the chief authority in regard to the day to day administration of the Railways.

Railway Finances Railway finance was originally included in the Indian budget. In 1925, it was segregated from the general finance and put on its own feet. Thereafter the Railway contributes a fixed amount to the general revenues on the basis of the capital at charge. The rate of dividend payable to the general revenues rose from 4 per cent during 1950–51 to 4¼ per cent during 1961–1963 and 4½ per cent from April 1, 1963. All new capital made available after April 1, 1964 receives dividend at the rate of 5½ per cent. In addition the railways are paying a lump sum of Rs. 12.5 crores to the general exchequer for transfer to the States, in lieu of passenger tax merged with fares since April 1961.

The Railway Convention Committee, 1971, which allocates financial assets and liabilities as between the government and the Railways have recommended a financial relief of Rs. 21.53 crores in 1971-72 and Rs 21.19 crores in 1972-73.

Financial Position

For the five years ending 1970 71, the Railway had accumulated losses amounting to Rs. 77.35 crores. The budget for 1972 73 showed a surplus, for the first time in 5 years. In spite of the anticipated surplus, the Railway Minister announced a selective increase in fares and freights*. With this additional income, and the relief given by the Railway Convention Committee, the Railways came out of the red in the revised estimates, with a surplus of Rs. 12.40 crores.

Back again in the red

The budget estimates of 1973 74 provided for an additional revenue of Rs. 44.35 leaving a surplus of Rs. 25 01 crores. This surplus was to be set off against liabilities amounting to Rs. 33 66 crores leaving a gap of Rs. 8.65 crores. But the estimates and anticipations failed to materialise, owing to a variety of factors. The two most important factors, that affected the railway finances, was the loss in traffic due to strikes and the increased wage-bill payable under the Third Pay Commissions report.

The Railway Minister said(Oct.2,1973) that the Railways were estimated to suffer a loss of Rs. 110 crores during the year (1973 74). Thus the railways are back in the red again

1974-75

The fears expressed by the Railway Minister on October 2, 1973 turned out to be true. The 1973-74 budget ended up with a loss of Rs. 99 75 crores.

Railway and General Revenues

The huge deficit accumulated in 1973-74 is being made good by a loan from the general revenues. After utilising the balance available in the revenue reserve fund, namely Rs. 0.02 crores the Railways will owe the general revenues Rs. 99.72 crores as in March 1974. The development fund of the railways too is in the red. At the end of 1972-73 it had an outstanding liability of Rs. 85.65 crores to the general revenues With an additional loan of Rs. 22.65 crores during the year, this fund will owe to the general revenues at the end of the year Rs.108.30 crores. The total liability of the railways to the general revenues, thus, will be Rs. 208.02 crores. An overwhelming proportion of this liability, it may be pointed out, has been incurred in the last two years, even though the revenue reserve fund started borrowing from the general revenues, in the current phase in 1968-69 and the development fund had to bank upon such accommodation a year earlier.

---

* Railway fares and freights have been revised upward several times. Even then, according to the Chairman of the Railway Board, the fare & freight on Indian Railways in 1973, was low compared to other countries-average fare per passenger km. being 2.56 paise and freight per tonne km. being 6.57 paise.

Table 113

Railway Budget at a Glance *(in Rs. crores)*

	Actuals 1972-73	*Budget estimates 1973-74*	*Revised estimates 1973-74*	*Budget estimates 1974-75*
Gross traffic receipts	**1162.42**	**1263.20**	**1170.00**	**1427.15**
Ordinary revenue working expenses (Net) i. e, after taking credit for recoveries	856·63	918.25	953.02	1148.37
Appropriation to depreciation reserve fund from revenue	110.00	115.00	115.00	115.00
Appropriation to pension fund	16.00	16.00	16.00	16.00
Net miscellaneous expenditure (including cost of works charged to revenue)	15.36	17.48	17.13	18.90
Total expenditure	**997.99**	**1066.73**	**1101.15**	**1298.27**
Net railway revenue	**164.43**	**196.47**	**68.85**	**128.88**
Dividend to general revenues	161.51	172.61	168.60	181.67
Net surplus (+)/shortfall(—)	**(+)2.92**	**(+)23 86**	**(—)99.75**	**(—)52.79**
Operating ratio	84·5%	83.1%	92.7%	89.7%

Supplementary Railway Budget

On Aug 21, 1974, the Minister for Railways presented a supplementary budget to the Lok Sabha. This budget sought to raise an additional Rs 140.07 crores, during the rest of the financial year. Of this, goods traffic will contribute Rs 94.92 crores, through a supplementary charge of 16 2/3 per cent on hauls up to 500 km and 22 per cent on longer hauls. Food grains, pulses and edible oils are exempted from this levy. A supplementary charge of 15 per cent will be levied on luggage and parcels. This is expected to bring in another Rs. 3.6 crores. The remaining Rs. 41.55 crores are to come from passenger traffic (1) a supplementary charge of 25 per cent on air conditioned first class fare, and 33 1/3 per cent or chair car fares (Rs. 5.62 crores) (2) a supplementary charge of 25 per cent on second class (the lowest class) fares for distances between 26 km and 250 km and 20 per cent for those above 250 km (Rs. 17·96 crores). (3) All journeys by mail and express trains, will carry a supplementary charge of 25 per cent up to 250 kms and 20 per cent beyond that (Rs. 17.97 crores).

The Chairman of the Railway Board said that in spite of the increased levies, the Railways will end the current year with a deficit of Rs. 109.23 crores.

Drawbacks of the Railways

One of the foremost drawbacks of the Railway administration is the liability to operate uneconomic lines. Most of these lines are kept up for political reasons, as a sop to local interests. An annual loss of Rs. 6 crores on this account is begin incurred by the Railway.

Another source of leakage of revenue is ticketless travel The Railway Minister in his budget speech (1972) said that according to a survey conducted in 1967 68 the estimated annual loss of revenue to the railways on this account was between Rs. 20 and Rs. 25 crores. This constituted about 10 per cent of the annual passenger earnings of the Railways at that time.

"Compensation paid for thefts, pilferage and damages of booked consignments" constitute another item of loss to the Railway. This was estimated at Rs. 13·25 crores in 1972-73.

A fourth cause may be traced the general inflationary trend in the country. The Railways have had to pay out, the inflated prices but had to be content with lower prices for their services. The public has always resisted any increase in freights and fares, and the political parties in power, favoured the people, rather than the railway.

Add to this, the general operational inefficiency, which has been on the increase and the strikes go slows, work-to-rule and other agitations of the staff and we shall have more than satisfactory reasons why the railways tend to go from bad to worse.

Development

Conversion of lines. The Railway Board has drawn up a perspective plan for the conversion of about 3,200 kilometres of high density metre gauge trunk route into broad gauge. These conversions are proposed to be taken up in the next 10-15 years at a cost of about Rs. 230 crores.

The perspective plan drawn up by the Board covers the following sections- (i) Varanasi-Bhatni-Gorakhpur; (ii) Barabanki-Gond-Gorakhpur; (iii) Viramgam-Okha-Porbandar; (iv) Guntakal Bangalore; (v) Bongaigon-Gauhati; (vi) Karur-Dindigul-Tuticorin; (vii) Bhatni-Barauni-Kathiar; (viii) Samastipur-Raxaul Via Muzaffarpur or Darbhanga; (ix) Ernakulam-Quilon-Trivandrum and (x) Miaji-Hospet-Mormugao and Alnaver-Dandeli.

The following new lines and gauge conversion projects are to be taken up in 1974—75. (1) Conversion of New Bongaigaon-Gauhati section from metre gauge to broad gauge. (2) Construction of a new metre gauge line from Dharmanagar to Kumarghat. (3) Construction of a new broad gauge line from Nadikude to Bibinagar. (4) Conversion of Guntur-Macherla line from metre gauge to broad gauge. (5) New broad gauge line from Rohtak to Bhiwani. (6) Provision of broad gauge links to Ramnagar and Kathgodam from Moradabad and Rampur. (7) Conversion of metre gauge section from Samastipur to Darbhanga to broad gauge. (8) Construction of a new metre gauge railway line from Jhanjarpur to Laukaha Bazar. (9) Construction of a new metre gauge line from Sakri to Hasanpur. (10) Construction of a new broad gauge line from Jakhapura to Banspani.

Dieselisation and Electrification. By March 1970, dieselisation was in operation over 23,604 route kilometres. Diesel locomotives are used mainly for hauling mail and express trains on a selective basis.

Electric traction first introduced in 1925 was confined till 1957 to areas around the cities of Bombay and Madras. A total route kilometrage of 3,553 was electrified up to March 31, 1970.

Diesel and electric traction accounted for 67.4 per cent of the net tonne km. moved in 1969-70 as compared to 10 per cent in 1960-61. The total passenger train kilometres operated by diesel and electric locomotives increased from one crore in 1965-66 to 2.9 crores in 1969-70.

Steam locomotion

The Chittaranjan Locomotive works, Calcutta, which provided locomotives for the Railways stopped production in 1972. But the complete elimination of steam engines will not be possible until the end of the century, because there are at persent more than 10,000 steam engines running and their replacement by diesel or electric trains, will take a very long time.

ROADS AND WATERWAYS

ROAD TRANSPORT

Evolution of Road Policy. Little attention had been paid to road development in India till the 1920's This was mainly because the Government of India concentrated its attention on railways in preference to roads. After the First World War, however, motor transport increased considerably and the paucity and the inadequacy of Indian roads, were felt all over India. In 1927, the Council of State adopted a resolution for the improvement of the road system and a Road Development Committee under Dr. M. R. Jayakar was set up. The Committee reported that road development (then a Provincial subject) was beyond the capacity of the Provincial governments and that considering the national importance of roads, the Central Government ought to bear a substantial portion of the costs.

In pursuance of the recommendation of the Jayakar Committee, the Central Road Fund was formed. The formation of the Fund, marks a turning point in the history of road development in India. For in a few years' time, it became the major source of funds for road-building in the country.

Central Road Fund

The Central-Road Fund was constituted in 1929, as a non-lapsing fund. It derived its revenue, from the proceeds of customs and excise duties levied on motor spirit, at the rate of 2½ annas per gallon (3.5 paise per litre). Twenty per cent of this income is credited to the Central Road Fund (Ordinary). Eighty per cent is distributed among States and Union Territories on the basis of the volume of motor spirit consumed in the State or Territory. The Central Road Fund (Ordinary) Reserve is utilised for the administration of the Fund, for research schemes and special investigation approved by the Government of India.

Nagpur Plan. In December 1943 the chief engineers of the various States met at Nagpur and evolved an All India road plan. On the basis that no well-developed agricultural area should be more than 5 miles from a metalled road, the chief engineers suggested that the road mileage should be increased from 220,000 to 331,000 of which 123,000 miles would be metalled. This plan, known as the Nagpur Plan formed the basis for future development plans.

Types of Roads

Roads, under the Nagpur Plan were classified as (1) National highways. (2) State highways. (3) Major district roads (4) Minor district roads and village roads

National highways connect capitals, ports and important towns and form the main lines of communication in the country. Roads of strategic importance for defence are also included in national highways.

State highways are trunk roads interlinking the State capital with important towns in the State and with the national highways.

District roads connect the headquarters of the districts with important areas in the district and intersect National and State highways or railways passing through the district.

Minor district roads and village roads connect different villages one to another and to the nearest district road or inland waterways.

Twenty-Year Road Plan

By the end of the Second Plan, the target of road mileage envisaged in the Nagpur Plan had been realised for the country as a whole, although progress as between individual States and regions was by no means even and large tracts still lagged behind. Towards the end of the Second Plan, chief engineers from the Centre and States met together to formulate a new twenty-year road development plan for the period 1961 81. The Plan proceeded on the basis that in a developed agricultural area, no village should remain more than 6.4 km from a metalled road, or more than 2.4 km from any type of road. In working out specific proposals, factors such as area, population, regional levels of development and development needs and possibilities were to be taken into consideration. Under the Plan compared to an average at the end of the Second Plan of 16 km. for every 100 square kilometres, the Plan envisaged that by 1981 the average length of road would be 32 kilometres for 100 square kilometres of area. The cost of completing the programme was estimated at Rs. 5,200 crores of which Rs 630 crores were for village roads.

Growth of Roads

In 1956, when the First Plan opened, India had a total of 538,178 km of roads, of which only 208,796 were surfaced In 1972 the Road System had expanded to an estimated length 1,254,000 of which 420,000 kms were surfaced.

Table 114

Growth of Road Length in India: 1947–1972

(Kilometres)

Year	*Surfaced roads*	*Classified unsurfaced roads*	*Other roads**	*Total*
1956	208796	269788	59524	538178
1961	262746	258358	204059	725173
1966	339374	299257	419435	1058066
1969	386784	296000	488000	1170729
1972 Estimated	430000	320000	504000	1254000

* Includes a negligible length of surface roads also built by Forest Dept. Irrigation/Electricity Depts etc, otherwise these roads are mostly Katcha built by CD and NES Blocks and Forest Depts.

Source: *Eastern Economist,* Annual Number 1973.

The position of up to-date increase in road length is as under:-

Table 115

Total Road Length in India*

(In Kilometres)

As on 31st March	*Surfaced*	*Total*
1969	389,190	1,234,619
1971	407,045	1,287,288
Increase in 2 years	17,855	52,669
Annual Increase	8,928	26,335
Estimated road length as on 31-3 1973	426,045	1,337,288

* Road length consists of NHs, roads under State PWD, District Boards/Zilla Parishads, Panchayat Samitis, CD and NES Blocks, Municipalities, Corporations, Forest Departments, Irrigation Departments, MES and Railways.

Source: Report, Ministry of Shipping and Transport Government of India

Though there has been an increase in road length, there has not been a corresponding increase in serviceability. On several routes there are still numerous missing links, unbridged river crossings, weak culverts and bridges and weak and inadequate road pavements. Many of the roads constructed under the Community Development Programme are not conducive to the operation of even heavy bullock cart traffic under adverse weather conditions, as certain segments of these inter-village or intra village roads are merely glorified foot tracks or trails that invariably get washed off in the rains.

Comparative Performance of India

With all this development, India's road kilometrage is still very poor, considering the huge dimensions of the country and the great volume of internal trade and commerce. It stands no comparison with the developed countries of the world and is even poorer than Sri Lanka or Philippines, both developing countries.

Table 116

Road Length (Surfaced) Relating to Area and Population in different Countries (1970)

Area Basis (km. of road for 100 sq. km. of Area)		*Population Basis (km. of road for one lakh persons)*
46.24	UK	641
43.56	W. Germany	598
43.45	France	1545
38.51	Switzerland	933
37.66	Denmark	1205
57.37	Sri Lanka	301
50.08	USA	2283
34.90	New Zealand	3325
21.80	Sweden	1218
18.68	Philippines	146
12.22	India	73
5.93	Canada	2768
5.17	Australia	3166
1.67	Iran	96
1.49	Iraq	69

Source: *Eastern Economist*, Annual Number 1973

Outlay on Roads

It is strange, that in spite of great importance attached to roads, the revenue from roads is diverted to other sectors of the economy. It has been estimated that the back log of expenditure on roads exceeded Rs. 500 crores in 1972-73.

The committee under the Chairmanship of Dr. B V. Keskar, which investigated into the finances of roads, (1967) obsereved, "If India is to benefit from the contribution which road and road transport can make to economic and social development, then there is no escape from earmarking considerably more funds for the development and maintenance of roads than is being done at present. The expenditure on road maintenance and improvements need not be restricted to the revenues collected from road transport industry" As against this, in actual practice, the proportionate share of road expenditure to taxation accruing from road transport has been consistently declining in India and during 1968 69 worked out to hardly 31 per cent as against 216 per cent in Japan, 140 per cent in Norway, 102 per cent in Germany, 73 per cent in Sri Lanka and 61 per cent in France.

Table 117

Revenue from Road Transport and Expenditure on Roads 1956-1970

(Rs. crores)

Year		*Revenue*	*Expenditure*
1956	... ...	71.4	82.2
1960	... ...	134.7	90.7
1965	... ...	347.6	157.9
1970	... ...	608.4	200.5

Source: *Eastern Economist, Annual Number, 1973.*

Motor Vehicles

Motor Vehicles Act of 1939 is the basic law that governs motor transport This Act, originally designed to protect the railways and the interests of the British rulers has no relevance to modern conditions. The Motor Vehicles (Amendment) Act of 1956, has made matters worse. Restrictive regulations, redundant administrative procedure, inordinate delay in issuing permits and the vast discretionary powers vested in Traffic Authorities, have acted as a drag on the development of motor transport in India.

The Constitution of India empowers the Central Government to legislate on motor vehicle's taxation, but the power to levy taxes vests with the States. This anomalous distinction has resulted in three agencies levying taxes on Motor transport viz, the Centre, the States and the Local Bodies. To add to the anomaly, these taxes are not collected according to any common policy but are dictated by the varying exigencies of the Central and State budgets and the still more varying demands of the local bodies

The Central taxes are: import duties on cars, spare parts etc. and customs and excise duties on oil and spare parts. The States levy two taxes, (1) a sale tax on motor spirit, oil and spare parts and (2) a motor vehicle tax, both differing widely from State to State. The local taxes are octroi, transit fees and wheel tax

Table 118

Motor Vehicles and Road Transport in Selected Countries

	India	*USA*	*Austria*	*Philippines*	*Canada*	*Japan*	*Mexico*
No. of motor vehicles (1967)	11,87,434	997,18,000*	17,15,837	4,09,803	70,35,261	178,46,000	13,04,820
No of vehicles per km. of surfaced road(1967)	3.9	22.1	71.5	8.9	12.7	26.9	34.2
No. of vehicles per km of (all surfaced) road (1967)	1.3	15.8	41.6	7.0	8.8	18.0	20
No. of vehicles per 100 sq km of area (1967)	36	1,065	2,046	137	71	4,828	66
No. of vehicles per lakh of population	252	50,639	23,537	1,224	35,089	18,051	2,960
Estimated highway expenditure in million of US dollars (1966)	221.15	14,390	253.1	40.8	1,341.39	2,278.28	145.12
%of highway expenditure to national income (1966)	0.69	2.3	3.34	0.84	3.37	2.83	0.74

* Does not include motor cycles

Motor Vehicles

The number of motor vehicles on the roads at the end of March 1970, was 16.36 lakhs. These included 4.3 lakh motor cycles and auto rickshaws 6.9 lakh private cars and jeeps, 0.89 lakh public service vehicles, 3.22 lakh goods vehicles and 1.13 lakh miscellaneous types. Maharashtra had the maximum number of vehicles-277,738, followed by West Bengal and Delhi. The poorest record among States went to Nagaland with 1,582 Vehicles of all sorts

Passenger Traffic

There has been a boom in the growth of passenger transportation by road in the last two decades This mode has registered an average growth of 8.4 per cent. In terms of the total passengers carried, its share has increased to 49.8 per cent in 1969-70 from 25.6 per cent in 1950-51. The total number of buses plying throughout the country has increased to 95,000 in 1969 70 from corresponding figure of 34,441 in 1950-51; during the same period the number of vehicles (including motorcycles, trucks, cars and jeeps etc.) has increased to about 15 lakhs from 300,000.

Nationalisation of Transport

In 1969-70, we had about 35,193 buses run by public sector undertakings and the rest by the private sector. We had 46 nationalised undertakings which include 16 state road transport corporations, 12 departmental enterprises, 14 municipal services and four companies registered under the Companies Act of 1956. These underatkings in the year 1968-69 carried approximately 4659 million passengers.

Nationalisation of passenger road transport was undertaken after Independence primarily to provide more and better facilities to the passengers. Barring Goa and Pondicherry, most of the States and Union Territories have nationalised passenger traffic in varying degrees. In Gujarat, Himachal Pradesh, Maharashtra, Orissa and Delhi, nationalised buses run on most of the routes. In the country as a whole, as on 31st March 1970, 39 per cent buses were being run by the public sector undertakings.

Goods transport continues to be almost exclusively in the private sector. In Assam and North Bengal areas, however, the Central Road Transport Corporation operates with its fleet of about 270 vehicles to maintain essential supplies in different regions. Most of the State transport bodies are working at a loss

National Highways

In the Indian Road System, the National Highways occupy a place of pride. Their share in the total road transportation load is about 35 per cent though the length of the National Highway roads, is only seven per cent of the total surfaced roads in the country. The total length of the National Highway stood at 28,819 km. in 1972-73.

International highway. A major development likely to take shape in the near future is the linking up of our national highways with the international highways as proposed by the ECAFE. The main international highway would link India with Lahore in Pakistan and Mandalay in Burma. The International highway, going on from Lahore in Pakistan to Turkey will link up the Asian highways to the European highways in the west while in the east, the international highway will go on from Mandalay to Rangoon and thence to Bangkok, Saigon and Singapore.

INLAND WATERWAYS

Inland waterways provide the cheapest form of transport in India They played a prominent part in Indian transport, till the end of the 19th century. The expansion of the railway and the advent of motor transport, however, reduced the importance of water transport. Still in certain parts of India, notably W. Bengal and Kerala, water transport continues to be important even today.

The length of navigable waterways in India is about 14,000 km. of which 3,500 km. are navigable by steamers. Important among them are the Ganga, the Brahmaputra and their tributaries, the Godavari, the Krishna and their canals, the backwaters and the West Coast Canals of Kerala, Buckingham Canals in A P and T. Nadu, the Delta Canals in Orissa and the Mandovi and the Zurai at Goa

SHIPPING AND AVIATION

SHIPPING

Development of Indian Shipping

Modern Indian shipping may be said to have started with the maiden voyage of the 5,934 ton ship, *Liberty* owned by the Scindia Steam Navigation Company on April 5, 1919. Progress in Indian shipping was slow. In 1947 Indian shipping was barely 1.92 lakh gross registered tons (GRT) and was almost exclusively confined to Indian coastal waters and to trade with adjacent countries like Sri-Lanka and Burma. As on Jan 1, 1974, the Indian merchant fleet consisted of 168 ships with GRT of 3,017,257.

India ranks 16th among the maritime countries of the world by way of tonnage and carries about two per cent of the world maritime trade. Indian merchant fleet is well balanced and diversified and comprises crago liners, passenger ships, bulk carriers and tankers.

Table 119

Expansion of Indian Merchant Fleet since Independence

Year	*No. of ships*	*GRT (lakhs)*
As on 15—8—47	59	1 92
,, 1—4—51	94	3.72
,, 31—3—56	126	4.80
,, 31—3—61	172	8.58
,, 31—3—66	221	15.40
,, 28—2—69	252	21.29
,, 31—3—72	256	25.09
,, 30—6—72	255	25.12
,, 1—4—73	260	26.54

Table 120

Present Tonnage of Indian Ships

	Coastal		*Overseas*		*Total*	
	No. of ships	*GRT*	*No. of ships*	*GRT*	*No. of ships*	*GRT*
As on April 1, 1973	59	201,182	201	2,453,257	260	2,654,439
Tonnage scrapped/sold	9	38,034	5	30,373	14	68,407
Tonnage transferred from overseas to coastal	3	26,340	3	26,340	...	...
Tonnage added	5	41,788	17	3,89,437	22	4,31,225
Tonnage as on January 1, 1974	58	2,31,276	201	2,785,981	268	3,017,257

Table 121

India's Share in Merchant Shipping

(Thousand GRT)

Country	*1961*		*1966*		*1971*		*1972*	
Liberia	10,930	(8.1)	20,633	(12.0)	38,552	(15.6)	44,444	(16.6)
Japan	7,954	(5.9)	14,723	(8.6)	30,509	(12 3)	34,929	(13 0)
UK	21,465	(15.8)	21,542	(12.6)	27,335	(11 1)	28,625	(10 7)
Norway	12,025	(8 9)	16,421	(9.6)	21,720	(8.8)	23,507	(8.8)
USSR	4,066	(3.0)+	9,492	(5.5)+	16,194	(6.6)	16,734	(6.2)
Greece	5,439	(4.0)	7,163	(4 2)	13,066	(5.3)	15,329	(5.7)
USA*	24,238	17.8	20,797	(12.2)	16,266	(6.6)	15,024	(5.6)
Germany (West)	4,771	3 5	5 766	(3.4)	8,679	(3.5)	8,516	(3.2)
Italy	5 319	3 9)	5,851	(3.4)	8,138	(3.3)	8,187	(3 1)
Panama	4,049	(3 0)	4,543	(2.7)	6,262	(2.5)	7,794	(2.9)
France	5,117	(3.8)	5,260	(3.1)	7,011	(2.8)	7,420	(2.8)
Sweden	3,996	(2.9)	4,400	(2.6)	4.978	(2 0)	5,632	(2 1)
Netherlands	4,910	(3.6)	4,980	(2.9	5,269	(2.1)	4,972	(1.8)
Spain	1,958	(1.4)	2,242	(1.3)	3,934	(1.6)	4,300	(1.6)
Denmark	2,307	(1.7)	2,839	(1.7)	3,520	1.4)	4,020	(1 5)
India	955	(0 7	1,795	1.1	2,478	(1 0	2,650	(1.0)
Others	16,417	(12.0)	22,713	(13.1)	33,292	(13.5)	36,257	(13.4)
World Total	135,916	(100.0)	171,130	(100 0)	247,203	(100 0)	268,340	100 0)

+ Incomplete information.

* Including USA Reserve Fleet estimated at 4.25 million tons gross in 1972.

Note: Figures in brackets indicate the percentages to total tonnage.

Shipping in Public Sector

Two shipping companies in the public sector are now in operation (1) The Shipping Corporation of India Ltd. (2) The Mogul Lines Ltd. They account for 12.2 lakh GRT or approximately 47 per cent of the national tonnage.

Shipping Corporation of India Ltd. came into being on 2nd October, 1961, with the amalgamation of the Eastern and Western Shipping Corporation. It has an authorised capital of Rs 35 crores and an issued and paid up capital of Rs. 23.45 crores.

Shipping Corporation is today the largest shipping company in India. Its activities are worldwide. It manages the vessels of the Government of India plying between the Indian mainland and the Andamans and Nicobar islands and also looks after the manning and maintenance of the vessels of the Government plying to the Andamans group of islands. The Corporation also looks after the vessels of the Administration of the Union Territory of Laccadives.

Fleet position. In 1971-72 the tonnage of the Corporation showed an increase of 0.21 lakh DWT, bringing up the total tonnage to 13.76 lakh DWT. on the 31st March, 1972. During the year, the Corporation earned the highest gross earnings so far and paid a dividend of Rs. 153.01 lakhs.

Mogul Lines Ltd. of Bombay has an authorised capital of Rs. 2 crores and an issued and paid up capital of Rs. 10,119,000 divided into 101,190 shares of Rs. 100 each fully paid up. Out of these, the Government of India hold 80,180 shares representing 79.2 per cent of the share holding of the Company. The balance of the shares are held by various individuals in India and abroad

The company has a fleet of four passenger-cum cargo steamers, *Akbar, Mohammad, Mozaffari* and *Saudi* and one collier *Lok Sevak* and one tanker *Deepak*. The total GRT of the company's fleet stood at about 49,000 GRT in 1972.

Haj Pilgrim Traffic, which was the original business of the Mogul Lines, amounted to 15,284 passengers in 1971 as against 15,868 carried in 1970.

Jayanti Shipping Company Ltd. was a venturesome enterprise sponsord by Dr. Jayanti Dharma Teja He managed to wangle as much as Rs 29.25 crores from Shipping Development Fund of the Government of India to acquire 13 new cargo vessels totalling 20,000 GRT The Company soon ran into difficulties and the Government of India was obliged to take over the Company, in 1966.

The Jayanti Shipping Co was made a subsidiary of the Shipping Corporation of India 1971. It was amalgamated with the S C.I. with effect from the 1st Jan. 1972.

Shipbuilding

World Output. The World Shipping Industry registered a record output by launching more than twenty million GRT for the first time in 1970. Nearly 50 per cent of it was launched in Japan

The world tonnage on 30th June, 1970 stood at over 227 million GRT. Tankers of 200,000 tons DWT and above continued to be popular. By mid 1974, it is expected that over 400 ships of this size would be in service.

Hindustan Shipyard Ltd.

The first attempt at shipbuilding in India was the establishment of the Hindustan Shipyard Ltd., Visakapatnam in 1941.

The total value of production of the Shipyard, including ship construction, ship repairs, capital and other miscellaneous works executed departmentally, is estimated to be of the order of Rs. 918 lakhs as against Rs. 1,454.77 lakhs in 1972-73. The target of completion for the year 1973 74 is three ships totalling 40,500 DWT.

Cochin Shipyard Ltd.

A second shipbuilding project the Cochin Shipyard-was sanctioned by the Government of India in 1967. In 1972, the Cochin Shipyard Project was converted into a fully Government owned limited company under the Indian Companies Act. The Company has an authorised capital of Rs. 50 crores and was registered on 19-3-1972.

This Shipyard, which is designed to have two docks, one for building ships upto 85,000 tonnes DWT and another for taking ships of sizes upto 100,000 tonnes DWT for repair purposes, along with all necessary facilities, was originally estimated to cost Rs. 45 42 crores, but in the light of abnormal rise in cost the estimate was revised and cost of the project will now be Rs. 70 crores. The Project has been undertaken with technical co operation of M/s Mitsubishi Heavy Industries, Japan. Work on this Project was commenced on 1st October 1970 and is scheduled to be completed by 1st October 1975. When completed and in full production, the Shipyard is expected to build two ships per year of 66,000 to 85,000 tonnes each. The target of annual ship repair capacity is one million tonnes GRT.

Ports

India has eight major ports at present viz, Calcutta, Paradeep, Visakapatnam, and Madras on the East Coast and Kandla, Bombay, Mormugao and Cochin on the West Coast. All the major ports are being administered by statutory autonomous Port Trusts.

The traffic handled at the major ports has increased during the last twenty one years from 23 million tonnes to 59 million tonnes annually—an increase by 157 per cent. The ports have played a dominant role in our export trade as 95 per cent of the exports are despatched by sea. At present the port industry also provides direct employment for over two lakhs of workers.

Fourth Plan Projects. The Fourth Five Year Plan programme for development of major ports includes: (1) the completion of Tuticorin and Mangalore Harbour projects; (2) the completion of the Haldia Dock to supplement the facilities at Calcutta port, (3) the undertaking of corrective works in the Bhagirathi and Hooghly with a view to reaping optimum benefits from the Farakka

Barrage; (4) the Dock Expansion and Ballard Pier Extension Schemes at Bombay; (5) the construction of the Satellite Port for Bombay at Nhava Sheva; (6) the completion of an outer harbour consisting of an oil dock and ore berth at Madras; (7) the construction of an outer harbour at Visakhapatnam to cater to large scale iron ore exports; (8) the establishment of an oil dock at Cochin to handle deep-drafted oil tankers bringing crude oil for the Cochin Refinery; (9) the commissioning of the fifth berth at Kandla Port; (10) the development of ore handling facilities at Mormugao; (11) improvements to the ore handling plant and the construction of a general cargo berth at Paradeep.

Major Ports

Kandla. When India lost Karachi after partition, there was no major port to serve the 1,000 mile coastline between Bombay and Karachi. Therefore Kandla, in Gujarat was declared a major port in 1955. The port was completed in 1957. It serves a vast hinterland, made up of Rajasthan, Punjab, Delhi, and north west UP.

Bombay. Situated almost midway on the west coast of India, Bombay is a natural deep water harbour. It is administered by the Bombay Port Trust The harbour covers some 75 sq. miles and provides a safe shelter for ships at all seasons. It is now the biggest port in India. The three major docks at Bombay port are: Alexandra Dock, Victoria Dock and Princess Dock. The preparation of the Master plan for the development of Bombay Port has been undertaken by the Port Trust consulting engineers.

Mormugao is one of the finest natural ports in India. Though a natural harbour it is less spacious than Bombay.

Cochin lies on the West Coast in Kerala, some 200 miles north of Cape Comorin, the southernmost tip of India. Rightly called the queen of the Arabian Sea, it is one of the finest natural harbours in the East. It covers an area of 120 sq. miles of sheltered backwater and provides a calm harbourage for all vessels even in the worst monsoon weather. The harbour is connected to the hinterland by numberless waterways, plenty of roads and two railway lines running north and south It has a hinterland rich in natural produce like pepper, cardamom, tea, coffee, rubber etc. It is administered directly by the Central Government.

Madras. Situated on the East Coast, Madras is the third biggest port in India. It is an artificial port and administered by the Madras Port Trust. It has a vast hinterland comprising Madras, AP and Kerala.

Visakhapatnam, on the East Coast, lies between Madras and Calcutta. It is a landlocked port and is controlled by the Government of India. India's first shipbuilding year was established here.

Paradeep, a newly opened port in Orissa on the East Coast of India was declared a major port in April 1966. A Port Trust has been set up at Paradeep from 1st November 1967.

Calcutta. is the second biggest port in India and is situated on the Hooghly River, some 90 miles from the Bay of Bengal. On account of its location in estuarine Hooghly, Calcutta is completely dependent on tides. Ships can enter and clear only at fixed hours according to the tides Calcutta has two main docks-- Kidderpore Dock and King George's Dock.

Table 122

Traffic at Major Ports, 1970—72

(In million tonnes)

Major Ports	*Year*	*Total*
Calcutta (including Haldia	1970—71	5.96
	1971—72	7.30
Bombay	1970—71	14.37
	1971—72	16.14
Tamil Nadu	1970—71	6.93
	1971—72	6:79
Cochin	1970—71	4.84
	1971—72	4.69
Visakhapatnam	1970—71	8.73
	1971—72	8.64
Kandla	1970—71	1.61
	1971—72	2.03
Mormugao	1970—71	1.01
	1971—72	11.70
Paradeep	1970—71	2.16
	1971—72	1.91
Mangalore*	1970—71	0.40
	1971—72	0.34
Tuticorin*	1970—71	0.60
	1971—72	1.02
Total	1970—71	56.61
	1971—72	60.56

* *Being developed as Major Ports.*
Source: "REPORT (1972-73), Ministry of Shipping & Transport".

Intermediate and Minor Ports

The Indian coastline is also served by a large number of intermediate and minor ports (about 225 of which 150 are working ports) which together handle a a coastal and overseas traffic of about 90 lakh tonnes per annum. The administration of these ports is the responsibility of the State Governments.

Intermediate ports are distributed among States and Territories as follows:

Karnataka: Karwar, and Mangalore and 19 minor ports.

Tamil Nadu: Cuddalore, Nagapattanam, and Tuticorin and 7 minor ports.

Maharashtra: Ratnagiri and Redi and 46 minor ports.

Gujarat: Okha, Porbandar, Bhavanagar, Navalakshmi, Bedi, Veraval, Broach Mandir, Sikka and Surat and 40 minor ports.

Kerala: Alleppey and Kozhikode and 9 minor ports.

Orissa: Paradeep and one minor port.

Andhra Pradesh: Masulipatnam and Kakinada and 5 minor ports.

Pondicherry: One minor port only.

Andaman and Nicobar Islands: 15 minor ports only.

AVIATION

Growth of Aviation

India took the first steps in aviation as far back as in 1911 In that year, demonstration flights were made in India for the first time. Among these, the most remarkable was the flight by M. Picquet, a Frenchman. He carried mail from Allahabad to Naini, a distance of some 10 km. This was the first air mail service in the world

But it was only in January 1920 that organised air transport began in India, This service was opened with two RAF planes and carried mail from Karachi to Bombay In 1927, the Civil Aviation Department was formed. Aerodromes were built and flying clubs were started. In 1929 a weekly service was opened between UK and India by the Imperial Airways The service took seven days to reach India and vice versa as against three weeks by ship.

The overseas (UK-India) service was extended from Karachi to Delhi. In 1932 Indian National Airways Ltd opened a service from Karachi to Madras and Tata Airways Ltd, one from Karachi to Lahore These companies carried mail on behalf of the P & T. Department which levied an air-mail surcharge In 1937 the Empire Air Mail Scheme was introduced. Under this scheme, letter-mails between Empire Countries were to be carried without any surcharge.

The commencement of the World War in 1939 upset all air services. The Empire Air Mail Scheme was suspended and the Indian Civil Aviation Companies had to operate their services for government and defence purposes.

From 1945, air passenger and flight traffic increased steadily and as many as 11 aviation companies were formed in India.

In 1946 an Air Transport Licensing board was constituted with the object of licensing scheduled air transport services. In 1949, night air mail services were opened between the four principal cities of India - Delhi, Calcutta, Bombay and Madras A limited number of passengers and freight were also carried on these services. The "All-up" air mail scheme introduced in 1949 removed the airmail surcharge.

But air services were soon in trouble. Operationally they fared well but as the operation costs were mounting, they ran into financial losses. Considering the deteriorating positions of the air companies and the importance of air navigation for India, the Government stepped in and nationalised the air services.

In 1953, the Air Corporation Act was passed setting up two corporations: Indian Airlines Corporation and Air India International. Each Corporation consists of nine directors including a Chairman, all of whom are appointed by the Government. In 1955 an Air Transport Council was established to advise the Government on matters relating to the two Corporations.

The operation of air services is entrusted to two public sector Corporations, Air India for international services and Indian Airlines for domestic services and services to the neighbouring countries of Afghanistan, Nepal, Burma and Sri Lanka. The Directorate General of Civil Aviation is reponsible for various regulatory functions in the field of civil aviation and for providing the necessary infrastructure for civil transport operations.

Growth of Air Services

Since nationalisation in 1953 the Air Services progressed steadily, rising by nearly 500 per cent in passenger uplift and about 300 per cent in mail carriage by 1968. From 1969 to 1972 the progress was as below:-

Table 123

Development of Scheduled Air Services

Year	*Hours flown*	*Pass. carried*	*Freight carried (Tonnes)*	*Mail carried (tonnes)*
1969	150,483	2,490,409	31,915	12,162
1972	137,772	3,159,245	39,445	14,631

Source: "Report. 1972-73. Govt. of India, Ministry of Tourism and Civil Aviation."

Non-Scheduled Air Transport

On 31st December, 1972, besides the two Corporations and 16 Flying Clubs the following ten operators held permits for the operation of non-scheduled air services:

1. Air Survey Co. of India, Calcutta,
2. Bharat Commerce and Industries, Calcutta,
3. Jamair Co. Calcutta,
4. Cambatta Aviation, Bombay,
5. Kasturi and Sons, Madras,
6. J. K. Chemicals, Bombay (Safari Air ways),
7. Helicopter Services (P) Ltd, Bombay,
8. Mahindra and Mahindra, Bombay,
9. Pushpaka Aviation (P) Ltd., Madras
10. Davei Aviation, Bombay (for joy rides only).

Flying and Gliding Clubs. On 31st Dec. 1972, there were 25 subsidised flying clubs and 13 gliding clubs, besides the Government Gliding Centre at Poona.

Aerodromes. There were eighty-four aerodromes, in India in 1973 of which 12 were major aerodromes, 40 intermediate aerodromes and 32 minor aerodromes.

International Airports

The International Airports Authority of India was established on 1st Feb. 1972, under the International Airports Authority of India Act, 1971 The four international airports in India, namely, Bombay (Santa Cruz), Calcutta (Dum Dum), Delhi (Palam) and Madras (Meenambakam), function under the Authority.

Aircraft and Gliders. At the end of December, 1972, 664 aircraft held current certificates of registration and 256 aircraft held current certificates of airworthiness. Of these, 135 aircraft belonged to scheduled and non-scheduled commercial operators.

The number of gliders registered on 31st December, 1972 was 104 of which 32 held current certificates of airworthiness.

On 31st December, 1972, 90 aircraft were engaged in agricultural operations. This is a new line of activity which shows promise of future growth.

Indian Airlines, running domestic air services and services to near countries sustained a loss of Rs. 4 68 crores in 1970–71 and 4.55 crores in 1971-72 In 1972–73 it showed a marginal profit of Rs. 75,000. In Dec. 1973, the employees – some sections of them—struck work. The company retaliated by a lock out on Feb 7. The dispute was finally settled, the company and the workers losing Rs. 2 crores each.

Air India

On June 8, 1973, Air India completed 25 years of international operations. The first flight of Air India was on June 8, 1948, when Constellation *Malabar Princess* took off from Bombay to London via Cairo and Geneva Air India was nationalised in 1953

In 1973, Air India had a fleet of 9 Boeing 719 and 4 Boeing 747 inter-continental jet airliners.

After 18 years of continuous profitability the Corporation, for the first time in its history, suffered a net deficit for 1 66 crores during 1971–72.

The capital of the Corporation stood at Rs. 41.82 crores as on March 31, 1972 and is divided equally between 'loan capital' and 'equity capital'. The Corporation will pay interest on the 'loan capital' @ 6.5 to 7.5 per cent per annum. The Government has agreed to release additional capital of Rs. 5 crores.

During 1971 72 the Corporation paid an amount of Rs. 105.88 lakhs to Government as interest on the loan capital.

No dividend was declared for the year 1971-72 as the Corporation suffered a loss.

On March 31, the value of Air India's fixed assets stood at Rs. 165 13 crores Of this, the value of the assets financed by the Corporation from its own resources ploughed back into business amounted to Rs. 58.53 crores.

In Sept. 1974, some classes of employees declared a strike and the company answered with a lock out. The strike was finally withdrawn. But by the time, the company's finances were in a mess and its schedule of services in perfect disarray. Raj Bahudur, Minister of Civil Aviation, told the Lok Sabha on Nov. 22, that Air

India will resume services from Dec. 1, 1974. The estimated loss of the airline was Rs. 9.65 crores up to Nov. 6, the foreign exchange lost being equivalent to Rs. 47 crores

The Hotel Corporation of India, the Corporation's wholly owned subsidiary company, was registered under the Companies Act, 1956, on July 8, 1971. The Company has in hand, project for constructing a 350 room five star beach hotel at Juhu and a transit hotel with initially 180 rooms at Santa Cruz Air-port. The construction of the first phase of the two hotels is estimated to cost Rs. 7.76 crores.

Charter Company. Air India Charters Limited, the Corporation's subsidiary Charter Company, commenced operations from January 1, 1972. The performance of the company from the date of commencement of its business, is indicated below:

	Revenue earned (Rs. in lakhs)
January 1, 1972 to March, 31, 1972	124.04
April 1, 1972 to September 30, 1972	284.81

Indian Airlines The operating fleet of Indian Airlines as on 31 3-1972 was as below:

Boeing=7, Caravelle=7, F-27=10, Hs-748=13, Viscount=6, DC-3=8, (Total=51).

Indian Airlines has chartered a Boeing 707 aircraft from Air-India for scheduled operations on its network. This aircraft is operating daily service between Bombay/Bangalore, Bombay/Madras and Bombay/Calcutta.

The financial results for the period April, 1972 to December, 1972 indicate a cumulative loss of Rs 79.63 lakhs as against the budgeted profit of Rs. 255.15 lakhs.

Table 124

Indian Scheduled Operations
(1) Domestic Service (Monthly Average)

ear	Passenger load factor %	Tonne kms. (flown (000)) Passenger	Freight	Mail	Total	Revenue load factor %	Total revenue earned (Passenger, freight & mail) (Rs. '000)
951	54.0	1,749	1,420	229	3,398	72.0	—
956	60.9	2,052	1,640	440	4,092	69.9	5,019
961	71.5	4,253	1,488	521	6,262	75.0	10,015
966	72.0	7,462	1,775	746	8,983	73.5	18,525
969	73.7	11,271	1,167	837	13,275	76.6	32,513
970	76.8	11,526	1,138	817	13,481	79.6	34,777
971	69.0	11,327	1,173	817	13,317	71.8	38,198
972	61.4	13,751	1,773	973	16,498	64.4	47,382

Table 125

(2) International Services (Monthly average)

Year	Passenger load factor %	Tonne kms. (flown (000)) Passenger	Freight	Mail	Total	Revenue load factor %	Total revenue earned (Passenger, freight & mail) (Rs. '000)
1951	58.0	1,363	407	147	1,917	62.0	.
1956	63.8	2,990	834	341	4,165	61.4	8,371
1961	46.7	5,209	2,198	518	7,925	44.5	16,117
1966	47.7	8,799	4,178	724	13,701	49.8	33,352
1969	46.5	13,039	6,854	837	20,730	50.3	53,060
1970	52.7	15,199	7,144	758	23,101	54.8	58,646
1971	48.5	15,449	8,095	646	44,190	50.7	58,442
1972	52.0	19,448	9,433	716	29,596	53.3	67,300

Source: Director General of Civil Aviation.

POSTS AND TELEGRAPHS

Growth of the P & T

"Post Offices, as we know them to day owe their 'origin' to the small service introduced by the East India Company way back in 1854. A postal system was functioning in 1837. The first postage stamp was issued in Karachi in 1852. It was valid only in the Province of Sind In 1854, the Company constituted the Postal Service as a separate entity under a Director General and issued a Postage stamp, on an all India basis"¶. The first telegraph line was put up in India in 1853 It extended from Calcutta to Agra. The Posts and Telegraph system, received statutory recognition under Act VI of 1898.

In 1864, there were 211 major and 451 minor post offices in the country; almost all of them confined to cities and major towns. They handled some 12 million postal articles a year. At the time of Independence, on Aug. 15th 1947, there were 22,116 post offices of various types in the country handling 124 crores of postal articles. Since Independence a systematic attempt has been made to see that every village in India had postal facilities. On the 1st of July, 1968, the 100,000th post office was opened in the Sababad district of Bihar. On the 31st March, 1972, the number of post offices rose to 111,682 which handled 657 crores of postal articles.

Postal Service

In keeping with the Government's policy of extending postal facilities to all the villages, more post offices have been established in the villages than in towns. Out of the 111,682 post offices (1972) 101,162 are located in rural areas and only 10,520 in the towns. The growth of the post offices, both in terms of area and population has been spectacular, since Independence. At the time of Independence, a post office served on an average, an area of 146 sq. km. and a population of 16,000. As in 1973, a post office serves an area of 29 sq. km. and population of 4,900. Out of the 603,595 villages in the country, 55 per cent receive daily delivery of mail, 24 per cent three times a week, 13 per cent twice a week and 8 per cent once a week.

State-wise distribution 1972

State wise, the largest number of post offices were located in Andhra Pradesh (12,617), followed by Uttar Pradesh (12,390), Tamil Nadu (9,098), Maharashtra (8,267), Bihar (7,990), Karnataka (7,522), Rajasthan (6,723), Punjab (6,363) and Gujarat (6,217). The rest of the States had less than 6,000 post offices each.

In terms of the areas served, Delhi tops the list, with one post office for every 4.1 sq. km. followed by Kerala (9.95 sq- km.) Tamil Nadu (12.47 sq. km) and West Bengal (15.78) sq. km). Rest of the State have one post office for more than 20 sq. km. area.

In terms of population served by a single post office, Karnataka has the best performance with one post office for every 3,119 persons. Andhra Pradesh ranks second with one post office serving 3,192 persons followed by Orissa (3,476 persons), Rajasthan (3,535 persons). Punjab (3,860 persons), Gujarat (3,915 persons), and Tamil Nadu (3,975 persons). The remaining States have one post office for every 4,000 persons or more.

Administration The administration of Posts & Telegraphs and Telephones is under the control of the Department of Communications The Secretary of the Department of Communication is holding charge of the office of the Director General, P. & T., and is also the Chairman of P. & T, Board. The P. & T Board and Director General, Posts and Telegraphs, between them, exercise all the powers of the Department of Communications in administrative matters.

For administrative convenience, the activities of the Department has been divided into 16 territorial units called P. & T. Circles, viz. Andhra Pradesh, Bihar, Delhi, Gujarat, J & K, Kerala, MP, Maharashtra, Karnataka, North Eastern, Orissa, Punjab, Rajasthan, T Nadu, UP and W. Beagal.

Finances. The accounts of the P & T Department are maintained on a commercial basis. According to the revised convention between the Department and the General Revenues effective from 1st April, 1970, the Department pays a dividend to the General Revenues at the rate of 4.75 per cent on the net capital advanced upto 1963-64, reduced by its share of accumulated surplus as on 31st March, 1960 and further reduced by the balance in the Renewals Reserve Fund till the end of 1963-64. On the additional Capital Outlay after 31st March, 1964 (including mean Capital Outlay during the year on account) reduced by the net accretion to the Renewals Reserve Fund from 1st April, 1964 to 31st March, 1970 and thereafter by the balance at the end of the relevant year in the P & T Capital Reserve Fund, the dividend is payable at the rate of 6 75 per cent.

¶ H. N. Bahuguna

In spite of the commercial overtones in accounting, the P & T remains, first and foremost a public service, maintained irrespective of cost. This has been a change of policy inducted into the administration, only in recent years. Extension of postal services to the remote and undeveloped villages, naturally involved the maintenance of many unremunerative post offices and consequent loss to the Department.

The postal Section of the P & T Department has been recording deficits since 1964-65. These deficits have been fluctuating between Rs. 5 and Rs. 10 crores. The other three departments - telegraphs, telephones and radios have, however shown surpluses during the last several years In fact the telephones section of the department has recorded a fairly rapid rate of increase in earnings so that from Rs 57 crores in 1965 66 the figure went up to Rs. 195 crores in 1973-74. The expenditure also increased but the surplus has more or less continuously expanded so that from Rs. 6,75 crores in 1965-66 it went up to 35.09 crores in 1973-74. This nine fold increase in surplus confirms the fact that the telephones section of the department is really run on commercial lines.

Postal Section

It appears that a reasonably small deficit in the postal section is a part of the department's philosophy because this section is aimed to be run 'primarily and essentially as a public utility service'. The postal tariffs are expected to yield revenues equal or nearly equal to the total operational costs of the postal branch. With this basic aim the department has continued to expand its net-work of post offices in rural areas which are increasingly recording losses. These uneconomic post offices in the rural areas showing persistent losses have gone on without a stringent assessment of their viability.

In the circumstances, it is no wonder that the Budget for 1974-75 has sought to reduce the postal deficit, by increasing postal, telegraph and telephone charges, so as to bring in an additional Rs. 57 crores to the P & T Department.

Table 126

Post Offices in the Country
(As on 30 9 1973)

	Urban	*Rural*	*Total*
Head Offices	524	1	525
Sub Offices	9091	9984	19,075
E.D. Sub Offices	394	477	871
Dept. I. B. Offices	6	20	26
E D. Branch Offices	1101	94648	95,749
	11116	105130	116,246

Table 127

Receipts and Expenditure of Posts and Telegraphs Department

(Rs. crores)

	Posts	*Telegraphs*	*Radio*	*Telephones*
1965 66				
Receipts	65.99	14 44	0.24	57.10
Expenditure	76.01	17.88	0 29	50.35
Deficit (—) or Surplus (+)	—9.02	- 3.33	—0.05	+6.75
1966 67				
Receipts	70.15	16.96	0.32	71.92
Expenditure	84 90	20.35	0.18	56.81
Deficit (—) or Surplus (+)	—14.75	– 3 39	+0.14	+15.11
1967-68				
Receipts	74 23	19 95	0 36	79.76
Expenditure	95.12	24 45	0 16	69.04
Deficit (—) or Surplus(+)	—20.89	4.35	+0.20	+10.72
1968-69				
Receipts	93 98	22.52	0.44	92.26
Expenditure	107.22	26.80	0 44	76.36
Deficit (—) or Surplus (+)	—13 34	—4 48	—	+15.90
1969-70 (Revised)				
Receipts	97.81	24 50	0.56	110.88
Expenditure	110.80	28.03	0.53	85.5
Deficit (—) or Surplus (+)	12 99	– 3 97	+0.03	+25.38
1970 71				
Receipts	110.54	26 80	0.63	118.91
Expenditure	122.18	31.53	0.50	95.78
Deficit (—) or Surplus (+)	—10 30	—4.73	+0.13	+23.13

1971 72				
Receipts	110 64	35.76	0.67	152 74
Expenditure	129.77	28.20	0.46	114.14
Deficit( ) or Surplus (+)	—19.13	+7.56	0.27	+38.60
1972-73 (Revised)				
Receipts	118 25§	36.28	0 49	166 65
Expenditure	142 50§	30.90	0.33	122.56
Deficit (—) or Surplus(+)	—24.25§	+5.28	0.16	+44 48
1973 74 (Budget)				
Receipts	121 04†	39.72	0.51	195 57
Expenditure	160.80†	32.93	0 38	140.48
Deficit (—) or Surplus(+)	—39 76†	+6 79	0 13	+55.69
1974-75 (Budget)				
Receipts	146.80	*	*	283.01
Expenditure	172.52	*	*	201.85
Deficit (—) or Surplus (+)	25 72			+81.16

---

§ Actuals.

Revised Estimates. Revised estimat for Telegraphs, Radios and Telephon not given separately in Budget Memora dum for 1974-75.

Included in Telephones to make estimat for entire Telecommunications departme

Financial Services

The post offices in India, function like ordinary banks. It runs a Savings Bank department, which accepts, deposits and pays out cheques. Its Money Order system (started in 1880) enables the public to transfer sums of money from one place to another. In 1970-71 the total amount of money order transfers, exceeded Rs. 610 crores. The Postal Savings Banks (first opened in 1885) operated about 25 million accounts in 1970-71 and held a total deposit of Rs. 2,444 crores Postal Life Insurance policies numbered 254,252 in March 1971, the total sum assured being above 75 crores.

Dead letters. The Communications Minister, H. N. Bahuguna at a press conference at New Delhi on Sept. 21, 1972 said that the P & T Department handled 18 million postal articles every day on an average from Oct. 1971 to March 1972.

As the number of articles increased, casualties also increased. About 53,000 postal articles, mostly letters were getting stranded every day. The R. L. Os (Returned Letter Offices) were doing their best to decipher the addresses of addressees or senders, but in spite of their best efforts, 4,000 letters were being accounted dead every day. Bombay topped the list in death rate, with 181 letters a day, followed by Lucknow with 150 and Ahmedabad with 130.

PIN Code

As from Aug 15, 1972, the P & T Department has introduced a Postal Index Number Code (PIN Code) more or less on the pattern of the ZIP code in USA. Under this system, the names of the post offices are intended to be replaced by numbers. For the present, however, the names are retained, the numbers being added to avoid confusion between similar-sounding post office names. Thus *Thalavadi* in Kerala and *Talavadi* in T. Nadu, will have separate numbers hereafter, and there will be no confusion in the matter of delivery, despite the dangerously similar names the two post offices have.

Under this system, India is divided into 8 regions. The code is a six digit number, the first digit standing for the region. The second and third digits stand for a sub area in the region. The last three digits stand for the particular post office of delivery eg Pincode number 686001 represents Kottayam (Kottayam 1). 6 is the regional number (Kerala and T Nadu); 86, the second and third digits stand for Kottayam Postal Division Offices in Town centres having zonal delivery numbers form a separate group and retain the same zonal numbers as the last 5th and 6th digit in the new code, Hence 686001 represents Kottayam Head Post Office (Kottayam 1); 686002 represents Kottayam Collectorate P. O, (Kottayam 2) and so on.

Telecommunications

The first long distance overhead telegraph was started in 1853 between Calcutta and Agra This line was later extended to Bombay on one side and Peshawar on the other. Telegraph circuits were gradually extended all over India till they reached 14,900 miles in length. The telegraph service in India celebrated its centenary in November 1953.

The total number of telegraph offices in the country are 15,968 in 1972-73. Nearly 58.4 million telegrams were booked during 1971-72, against 55.6 million in the previous year. Of the 58.4 million telegrams, 3.6 million were foreign telegrams. More than 125 million words were transmitted to or received from foreign countries The inland telegrams yielded a revenue of Rs. 17.7 crores and India's share of revenue from the foreign telegrams was Rs. 1.8 crores.

The number of telex subscribers increased by 1,056 to 6,420 at the end of 1971-72.

While the increase in number of subscribers was 19.4 per cent, the telex revenue increased by 35.7 per cent to Rs. 7.79 crores. During 1972-73, five more telex exchanges were commissioned raising the total to 39.

Telephones

Telephone Service started in India, barely five years after the telephone was invented by Graham Bell. The first telephone system was a 50-line telephone in Calcutta in 1881. The first automatic telephone exchange was installed at Simla in 1913.

In 1971-72, 76,000 new connections including junction lines were provided bringing the total connections to 1.06 million. In terms of telephone sets, which include extensions, the number increased by 103,000 to 1.40 million. Despite expansion, the demand surpassed supply and the waiting list of applications moved up from 3.10 lakhs to 3.14 lakhs, with a marginal decrease in the average waiting period.

With the expansion of existing exchanges (3,967) and the addition of 238 new ones, the installed capacity in the country increased by 83,000 lines to a total of 1,276,000 lines. The overall utilisation was 83 per cent in 1971-72 against 82.3 per cent, in the previous year.

Overseas Communications Service

The O. C. S. operates through four international gateway centres located in Bombay, Calcutta, New Delhi and Madras under a Director General, with headquarters at Bombay. It provides Overseas telegraph, telephone, telex and photo-telegraph services.

Satellite Communication System

As on 1-12-1972 the O. C. S. was operating Satellite or Satellite/Cable circuits to 18 countries in the world, including UK, USA, Australia, Bahrain, Canada, East Africa, France, W. Germany, Hong Kong, Japan, Netherlands, Philippines and Singapore.

BROADCASTING AND TELEVISION

BROADCASTING

Broadcasting was pioneered in India by the Madras Presidency Club Radio in 1924. The Club worked a broadcasting service for three years, but owing to financial difficulties gave it up in 1927. In the same year (1927) some enterprising businessmen in Bombay started the Indian Broadcasting Company with stations at Bombay and Calcutta. This company failed in 1930. In 1932 the Government of India took over broadcasting. A separate department known as India Broadcasting Service was opened. The Service was later designated 'All India Radio' (A I R) and was placed under a separate Ministry—the Ministry of Information and Broadcasting. The AIR is controlled by a Director General, who is assisted by several Deputy Directors and a Chief Engineer.

Broadcasting, in its significance, reach an impact, constitutes the most powerful medium of mass communication in India. Its importance, as a medium of information and education, is particularly great in a vast and developing country like India where the reach of the printed word is not very wide or deep. While the total circulation of all the newspapers in India, including both English and Indian language papers, is around eight million, there are, according to a recent estimate, nearly 400 million potential listeners to All India Radio.

Broadcasting in India is a national service developed and operated by the Government of India. All India Radio (also known as Akashvani) operates this service, over a network of broadcasting stations located all over the country. As a national service, catering to the complex needs of a vast country, All India Radio seeks to represent in its national and regional programmes, the attitudes, aspirations and attainments of all sections of the Indian people and attempts to reflect, as fully and faithfully as possible, the richness of the Indian scene and the reach of the Indian mind.

A I R Network

Starting with six broadcasting stations in 1947, the AIR to-day has a net work of 67 broadcasting stations —40 principal stations, 24 auxiliary stations and 3 low-power stations.

The principal broadcasting stations of All India Radio are located at Ahmedabad, Allahabad, Bhopal, Bombay, Bangalore, Bhuj, Calcutta, Cuttack, Calicut, Delhi, Dibrugarh, Dharwar, Gauhati, Hyderabad, Indore, Imphal, Jammu, Jaipur, Jullundur, Kurseong, Kohima, Leh, Lucknow, Madras, Mathura, Nagpur, Patna, Poona, Port Blair, Pondicherry, Panaji, Ranchi, Rajkot, Srinagar, Shillong, Silchar, Simla, Tiruchi, Trivandrum and Vijayawada.

Programme

AIR's programme pattern combines three main elements: a national channel providing programmes of countrywide interest and significance; a zonal service from each of the four metropolitan centres (Delhi, Bombay, Calcutta and Madras); and regional services from individual stations each catering to the needs and interests of its respective area.

The principal ingredients of AIR's programme output are: Music, Spoken Word, Dramas, Features, News and Current Affairs, Commentaries and Discussions, Vividh Brarati and its Commercial Service, Farm and Home Broadcasts, Programmes for Special Audiences (like Youth, Women, Children, Industrial Workers and Tribal Population), and programmes for Overseas Listeners broadcast in the External Services.

To enable AIR to reach all sections of the Indian people, its programmes in the Home Service are broadcast in 20 principal languages and nearly a hundred dialects and tribal languages, In addition, the External Services of AIR beam their programmes to listeners all over the world in 24 languages.

On an average, programmes of the duration of more than 700 hours in the aggregate are broadcast from different stations of AIR every day. Music takes about 43.6 per cent of this time; news about 22.5 per cent. Talks, discussions, plays, features and special items for women, children, farmers, industrial workers, students and other groups occupy the rest of the time. The Vividh Bharati Service makes an additional aggregate of 360 hours a day, bringing the grand total of aggregate hours of broadcasting on AIR to more than a thousand hours a day.

News Service

The News Services Division of AIR through its central and regional news bulletins and its current affairs commentaries and discussions, provides accurate, objective, speedy and comprehensive coverage of news to listeners at home and abroad.

The output of news from AIR has been gradually rising. At present, as many as 230 bulletins are broadcast every day round-the-clock. Of these 175 bulletins are broadcast in the Home Services—83 bulletins in 18 languages from Delhi and 92 bulletins in 18 languages and 33 tribal dialects from regional stations.

External Services

AIR made its first broadcast to listeners outside India on October 1, 1939. Today, the External Services of AIR broadcast in 24 languages for about 51 hours daily round-the-clock, reaching listeners in widely scattered areas of the world.

Vividh Bharati

A self-contained service of popular entertainment, known as *Vividh Bharati*, was started in Oct. 1957, to meet the growing demand for popular music and light features. Today, it is broadcast from 30 centres spread all over the country.

Commercial Service

Commercial advertising was introduced on AIR in November, 1967, from the Bombay-Nagpur channel of Vividh Bharati on an experimental basis Encouraged by the response from advertisers and listeners alike, it was gradually extended to other centres Today, AIR's Commercial Service is broadcast from 18 of the 30 Vividh Bharati centres.

The total time available for sale on the commercial channels is between 75 to 85 minutes per day, which is only 10 per cent of the total daily Vividh Bharati broadcasting time. The advertisements are accepted in any language as tape-recorded 'spots' of 15 seconds and 30 seconds duration. No spot exceeds one minute The sponsored programmes have naturally longer duration.

The gross revenue of the Commercial Service since its inception upto September, 1971, amounted to Rs 83,842,522 of which Rs. 81,620,049 were from 'spots' and the balance from the 'sponsored programmes'

Youth Programmes

AIR's first youth service under the banner of 'Yuv Vani' (Voice of Youth) was put on the air from Delhi in 1969 with a six-and-a half hour schedule. Since then, similar services have been introduced from AIR stations at Calcutta (in August, 1970) and Hyderabad (in December, 1970).

Radio Receivers

The number of radio sets in the country has gone up by nearly 50 per cent since 1947. The total number of radio licenses on Dec. 31, 1972 stood at 129 lakhs. Maharashtra topped the list with over 19 lakh sets, followed by Punjab (14 lakhs) and T. Nadu (13 lakhs).

TELEVISION

Television in India began modestly on September 15, 1959, when AIR set up an experimental television service in Delhi. The Delhi TV Centre was designed to serve as an experimentation centre for developing the art and techniques of television programming in India, for training an adequate number of programme and technical personnel, and for evaluating the television medium as a means of social education and as an aid to development. This objective has been realised; and the TV Centre at Delhi has become a full,fledged telecasting station.

The Delhi Station now caters to about three lakh viewers with about 50,000 licensed sets

With the expansion over the years of the facilities available at the Delhi TV Centre, the transmission time has also been increasing. It was 20 minutes twice a week to begin with. Today, the total duration of the evening transmission is more than three-and-a-half hours, with an additional one-hour afternoon transmission on Sundays. TV audience in Delhi and the surrounding areas has been rapidly growing.

The Delhi TV Centre's school television service puts out regular in-school instructional programmes on selected subjects, supplementing the regular school classes. Some teachers' training programmes are also telecast. The number of students who benefit by these programmes is estimated to be more than two lakhs in 411 schools equipped with TV sets.

Bombay was the second city in India to open a TV Centre on 2-10-1972. It is planned to instal TV Stations at Srinagar (Kashmir), Amritsar (Punjab), Calcutta (West Bengal, Lucknow (UP) and Madras (T. Nadu) by 1975.

These five stations in addition to Delhi and Bombay will cover 30 per cent of India's territory and reach about 38 million viewers.

THE SCREEN

The Advent of the Cinema

The cinema came to India as early as 1896. The first motion picture was shown in India, on July 7, 1896 at Watson's Hotel, Bombay by the touring agents of the famous Lumiere Brothers of France. The show had a duration of less than an hour and consisted of items like 'the arrival of a train, the sea bath, workers leaving a factory and ladies and soldiers on wheels". *The Jubilee Procession* in England in 1897 was the next important exhibition in India It became a hit. Indian scenes captured by some foreign photographers were also shown now and then, with items like *Coconut Fair, Our Indian Empire and A Panorama of Indian Scenes.*

The first Indian to make a film was Harischandra Bhatvadekar also known as Sava Dada. In 1899 he photographed and exhibited his own short items, *The Wrestlers and Man and Monkey*. By this time a change had come in film exhibitions in Europe. Instead of photographing actual scenes, imaginary scenes were staged by actors which were photographed into films. *The Death of Nelson*, was one such. This opened a new line in film photography which was destined to revolutionise the film industry.

Feature Films

The first Indian story film *Pundalik*, was made by R. G. Torney and N C. Chitra and released at the Corporation Cinematograph, Bombay on May 18, 1912. This film centred round a saint of the same name in Maharashtra. The next year, on May 3, 1913, Dada Phalke released the long film story *Raja Harischandra* at the same theatre. *Pundalik* was half-British in its make, it being photographed by an English camera man, Johnson. *Raja Harischandra* was cent per cent Indian. Dada Saheb did everything himself from the script down to the marketing of the film. For this reason, Dada Saheb Phalke, has been rightly acclaimed as the Father of the Indian Cinema. Phalke laid down the basic norms of Indian films, in form and content. which have been largely followed ever since.

Phalke went on to produce two more films *Mohini Bhasmasur* and *Satyavan Savitry* both drawn from Hindu mythology. He took his 3 films to London, where they where exhibited. They won all round praise.

In Sept. 1917, Phalke released his most ambitious film venture *Lanka Dahanam*, again a mythological story. Exhibited in a double programme, with an English film called *The Blind Fate*, *Lanka Dahanam* (Burning of Lanka) proved to be a big box office hit. This success conclusively dispelled all fears about the future of the film industry in India.

In March, 1917, J. F. Madan of Calcutta, produced *Satyavadi Raja Harischandra*, based on the same mythological story at Phalke's *Raja Harischandra*.

Growth of Film Industry

These three men, R. G. Torney and Dada Sheb Phalke of Bombay and J. F. Madan of Calcutta are the pioneers of the film industry in India. J. F. Madan, was in addition, the pioneer of cinema houses. In 1907, he built India's first cinema house, in Calcutta. His company, the Elphinstone Bioscope Company, sponsored the gigantic chain of cinema houses in India later known as Madan Theatres.

Madras entered the film industry with *Keechaka Vadhom*, a mythological story in 1919. With the end of the first World War, many sub-centres of film production emerged—Kolhapur, Nasik, Sangli and Poona, around Bombay, Vijayawada, Salem and Coimbatore, around Madras and Gauhati and Bhubaneswar around Calcutta. By 1929, India was producing about 38 films a year. The production shot up to 270 in 1931, placing India among three largest producers of feature films in the world.

Talkies. The talkies came to India in 1931, with a bang and quickly displaced the movies. The first talkie produced in India was *Alam Ara* by the Imperial Film Studio, Bombay, in 1931, closely followed by *Shirin Ferhad* by Madan Theatres, Calcutta. These were followed by 20 other talkies in the same year. The talkies followed the knell of the silent films or movies. From a record 270 in 1931 silent films came down to a mere 7 in 1934 and faded out completely by 1936.

Production in 1971 and 1972. In 1971, India gained the top place in the world in film production, with a record number of 433 films, Japan coming second with about 400 films and U. S third, with about 200 films.

Diamond Jubilee. Between May 18, 1912, when India exhibited the first feature film *Pundalik* and May 18, 1972 when the country celebrated the Diamond Jubilee of the film industry, India had produced a total of 11,385 films (including 1,279 silent films) in 27 languages, five of them foreign-English, Arabic, Persian, Singhala, and Nepalese.

In 1972, India produced 413 films. Hindi films leading with 127, followed by Tamil (77) and Telugu (73). Next in order came Malayalam 47, Bengali 25, Kannada 20, Marathi 13, Hindustani and Assamese 7 each, Gujarati 4, Punjabi 3, Tulu 3, Oriya, Coorgi, Sindhi, Thai and Manipuri one each and English 3

Popular Entertainment

The Screen is today India's most popular entertainment. There were nearly 7,300 cinema theatres in 1971 with a seating capacity of over 4,276,050—4,716 were permanent structures and the rest temporary or touring cinemas. Weekly attendance in these cinema houses, averaged 30 million yielding a total revenue of Rs. 1,250 million per annum, roughly 45 per cent of which goes to the State exchequers as taxes.

Table 128

Number of Cinema Houses

	1960 61	*1970 71*
Permanent	3,579	4,716
Touring	1,241	2,575
Total	4,820	7,291

Documentaries and Newsreels

The Films Division of the Ministry of Information and Broadcasting is responsible for the production and distribution of newsreels, documentaries and other films required for public information, education and instruction. It produces nearly 150 films every year. Most of these are produced in English and the national languages of India. By 1970, the Division had released 1,146 newsreels and 1,199 short films for exhibition.

Every Cinema house in the country is bound, under the terms of its license, to exhibit with each performance a minimum length of film documentary or newsreel supplied by the Films Division at a rental of one per cent of the average weekly collections. This fetches a revenue of more than Rs. one crore yearly to the Government.

Censorship. The Central Board of Film Censors with headquarters at Bombay and regional offices at Bombay, Calcutta and Madras grants certificates for exhibition of films. In 1971, the Board granted 'U' certificates (Universal) to 1,684 Indian and 1,137 foreign films and 'A' certificates (Adults only) to 62 foreign and 12 Indian films. Eleven films 5 foreign and 6 Indian were refused certificates.

Table 129

Thematic classification of Films

Theme	*1961*	*1971*
Social	162	283
Crime	30	83
Fantasy	23	8
Historical	15	5
Biographical	5	2
Mythological	32	16
Legendary	26	12
Devotional	2	8
Children	1	13
Stunt	5	1
Adventure	2	–
Political	–	1
Full Length Documentary	–	1
Total	303	433

THE PRESS

Beginnings of Modern Journalism

Indian journalism on modern lines began in 1780 at Calcutta with the publication of *Bengal Gazette* by J. A. Hickey in English. This was followed by a number of periodicals in English, the most prominent of them being *John Bull in the East* (later known as *Englishman*) started in 1821. All these periodicals were run by Englishmen, in English, for the benefit of the English people of india.

Vernacular journalism, that is, periodicals published in native Indian languages, by Indians, was slow on the uptake. Nevertheless a number of periodicals—most of them short-lived—appeared in India in the latter half of the 19th century. The oldest surviving vernacular newspaper is *Bombay Samachar* in Gujarati language established in Bombay in 1822.

Most of the vernacular journals owed their origin to the national consciousness awakened by the revolution of 1857 against British rule in India. Naturally, their tone and temper displeased the British administration. The result was the Vernacular Press Act 1878, which strictly controlled Indian papers. With the growth of the national movement, drastic press legislations followed one another, such as Newspaper's Incitement to Indian States Act 1922, Official Secrets Act 1923, India Press (Emergency Powers) Act 1931, Foreign Regulation Act 1932, Indian States (Protection) Act 1934 etc

During the Second World War, when the British administrators wanted the cooperation of the Indian people, a gentleman's agreement was concluded between the Government and the Press, which resulted in the Press Advisory Committee at the Centre and in most of the States. This gave the Press a consultative status.

When India became free, there was no longer any antagonism between the Government and the people and the Press was free to play an entirely new role. In March 1947, the Government appointed a Press Laws Enquiry Committee, as a result of which, the obnoxious provisions of the Press Acts until then in force, were removed and a policy of consultative cooperation between the Government and the Press was inaugurated.

Freedom of the Press

Freedom of the Press is not specified as such in the Constitution, but the right to freedom of speech and expression guaranteed by Article 19 of the Constitution, is accepted as involving the freedom of the Press also. Under the Constitution (First Amendment Act of 1951) however, the Parliament can pass legislation reasonably restricting this right "in the interest of the security of the State, friendly relations with foreign States, public order, decency or morality, or in relation to contempt of court, defamation or incitement to offence". The words 'reasonable restriction' occurring in the Act, make such legislation justiciable.

The Press Council of India was formed in pursuance of the recommendations of the Press Commission. It was constituted on July 4, 1966 under the Press Council Act of 1965.

The Council consists of a Chairman, nominated by the Chief Justice of India and 25 other members. Of the 25 members 13 are to represent working journalists, of whom six are to be editors who have no financial interest in the newspapers they edit. Of the six editors, three are to represent Indian language papers. Another six members is to represent persons who own newspapers or manage them. Out of the other six, there shall represent specialised talent or experience in education, science, literature, law or culture. Of the rest, two (nominated by the Speaker of the Lok Sabha) are to represent the House of the people, and one (nominated by the Chairman of the Rajya Sabha to represent the Council of States.

The Press Council is an autonomous body, having perpectual succession and a common seal and thus a body corporate with the right to sue and to be sued. The object of the Council broadly is "to preserve the freedom of the Press and to maintain and imporve the standards of newspapers in India". The main power vested in the Council is the power to censure a newspaper or editor or working journalist, who has offended against journalistic ethics or public taste.

The Press Act was amended on March 31, 1970. The Act as amended gave representation (for the first time) to news agencies in the Press Council. It provided a Committee, consisting of the Chairman of the Rajya Sabha, the Speaker of the Lok Sabha and the Chief Justice of India, who will nominate the Chairman and members of the Press Council. The Act also confers quasi judicial powers to the Press Council for the purpose of performing any of its functions or holding an enquiry under the Act. The decisions of the Council in these matters, cannot be questioned in a Court of Law.

Adjudication

The Press Council has no bye-laws or codes to guide it in adjudging complaints. The only code it has formulated, relates to writing on communal issues. This code has been accepted by all newspapers. Regarding other matters, the Indian Press Council like the British Press Council has, opted for 'building up in course of time its own precedents in the process of dealing with specific complaints'.

Monopoly Press

Sometimes ago, the government mounted a campaign against what is called monopoly press. It was pointed out that many of the leading papers of India, are owned by millionaire businessmen and serve only their interests. The government's policy is to eliminate big business from journalism and to make the Indian newspapers, the true representatives of public opinion A proposal to achieve this object by central legislative enactment, is still in the air. The government has not yet defined what it means by a Monopoly Press.

Meanwhile, the provincial satraps who run the state governments have been taking it out on the local newspapers, who do not behave. In one State, editors are arrested, in another, power supply is cut and in some others, government advertisements are denied.

A case that came up before the Press Council was that of two newspapers - *Searchlight* and *Pradeep* both dailies-which were de-listed by the Bihar government. A sum of Rs. 8 lakhs was due to these papers on account of advertisements released earlier This amount was also withheld. The Press Council held that the action of the Bihar government was unjustified and discriminatory.

Thus, while freedom of the press, still subsists in theory, it is being threatened on all sides in devious ways.

Registrar of Newspapers. The office of the Registrar of Newspapers of India was set up on July 1, 1956. The Press Registrar is the statutory authority for the collection of statistics regarding the Press in the country. Under the Press Registrar, a central agency has been created to maintain a register of newspapers containing prescribed particulars about every newspaper in India.

The Oldest Newspapers

The oldest of all existing newspapers is the *Bombay Samachar* in Gujarati, established initially, as a weekly in 1822 and converted into a daily in 1955. The oldest English newspaper is the *Times of India*, Bombay, which was started initially as a weekly in 1838 but converted into a daily in 1850. Among periodicals, the oldest is the *Calcutta Review* published since 1844.

Number of Newspapers. The total number of newspapers in India was 12,218 at the end of 1971, distributed as under.*

---

* All figures that follow are for 1971, unless otherwise indicated.

Dailies—821, Tri and Bi Weeklies—68, Weeklies—3,608, Others 7,721.

Languages. Newspapers were published in India in 60 languages and the dailies in 21 languages, including the 15 national languages. Hindi had the highest total with 3,116. English came next with 2,390 and Urdu, 1,005. Among the national languages, Sanskrit had the lowest number with 28. Next came Assamese with 41 and Sindhi with 78.

States. Maharashtra remained the largest publisher of newspapers (1,845) followed by UP (1,682). Delhi had 1,341 newspapers and W. Bengal 1,293.

Out of a total of 12,218 newspapers, the Metropolitan cities, Delhi, Calcutta, Bombay and Madras accounted for 3,964 or 32.4 per cent

Centenarians

Six dailies--four in English and two in Gujarati--had completed more than one hundred years as dailies. Their particulars are given below:

Name of the daily	*Year of establishment*
Times of India (English), Bombay	1850
Jame-Jamshed (Gujarti), Bombay	1853
Bombay Samachar (Gujarati), Bombay	1855*
Pioneer (English), Lucknow	1865
Mail (English), Madras	1867
Amrita Bazar Patrika (English), Calcutta	1868

---

* Year of conversion into a daily

Source *Press in India 1972*

CIRCULATION

The highest circulation attained by an Indian language daily newspaper in 1973 was 315,298 by Malayala Manorama (Malayalam) compared to 302,681 in 1972 by the same paper. The highest circulation attained by a daily in 1973 was 374,575 by Indian Express (8 Editions Bombay, Ahmedabad, New Delhi, Madurai, Vijayawada, Madras & Cochin).

Average circulation of Malayala Manorama for the audit period from January to June 1974 was 2,92,355 (Audit Bureou of Circulation Report). The number of dailies with circulation one lakh and above in 1973 was 23.

The highest circulation attained by a Weekly in 1973 is 5,02,204 by Kumudom, Madras (Tamil) against 4,37,689 in 1972. Malayala Manorama Weekly came second with a circulation of 2,65,401 in1973 as against 2,99,605 in 1972. The number of weeklies with circulation two lakh and above in 1973 was 10. The highest circulation attained by fortnightly and monthly magazines in India in 1973 was 1,63,619 by Film Fare, Bombay (English) as against 1,59,851 by the same periodical in 1972.

The average circulation of a newspaper during 1971 remained at the previous year's level of 4,500 copies. The average for a daily (including tri-and bi-weeklies) was 16,000 copies and of a periodical 3,400 copies.

Dailies (circulation one lakh and above-1973)*

	Indian Express-Bombay, Ahmedabad, New Delhi, Madurai, Vijayawada, Madras, Bangalore & Cochin	3,74,575
2	Malayala Manorama, Kottayam & Kozhikode	3,15,298
3	Ananda Bazar Partika, Calcutta	2,98,554
4	Mathrubhumi, Calicut & Cochin	2,71,827
5	Daily Thanthi, Madras, Madurai, Coimbatore, Trichy, Tirunelveli, Vellore & Cuddalore	2,55,019
6	Hindu, Madras	2,13,534
7	Times of India, Bombay, Ahmedabad	2,09,451
8	Statesman Calcutta & New Delhi	1,85,643
9	Navabharat Times-New Delhi	1,84,606
10	Jugantar, Calcutta	1,80,434
11	Dinamony-Madurai & Madras	1,76,205
12	Hindustan New Delhi	1,55,491
13	Hindustan Times -New Delhi	1,55,048
14	Kerala Kaumudi-Trivandrum	1,42,043
15	Lokasatta- Bombay	1,35,674
16	Maharashtra Times Bombay	1,25,222
17	Bombay Samachar Bombay	1,16,039
18	Tribune, Chandigarh	1,14,260
19	Andhra Prabha, Vijayawada & Bangalore	1,06,820
20	Gujarat Samachar, Ahmedabad	104,958
21	Sakal-Poona & Bombay	103,458
22	Amrita Bazar Patrika, Calcutta	103,194
23	Sandesh, Ahmedabad 1	102,117

Weeklies (Circulation two lakhs and above-1973)*

1	Kumudam, Madras	502,204
2	Malayala Manorama Weekly Kottayam	365,401
3	Rani Weekly Madras	324,571

4	Times Weekly - Bombay, Ahmedbad & New Delhi	311,217
5	Illustrated Weekly of India, Bombay	288,168
6	Lokasatta (Sunday), Bombay	221,143
7	Dharmayug, Bombay	221,064
8	Sunday Standard - Madurai, Vijayawada, Madras, Bangalore & Cochin	218,726
9	Ananda Vikatan, Madras	208,686
10	Kalkandu, Madras	208,262

Periodicals

There were 11,329 periodicals in India at the end of 1971. The total circulation of 6,057 periodicals for which circulation data for the year were available, was 204 lakhs. In 1974 English claimed the largest circulation of periodicals (47 81 lakhs).

Periodicals in India in 1971 have been classified into 21 different categories according to contents The largest number (4,034) of periodicals dealt with 'news and current affairs', followed by 'literary and cultural' (1,887) and 'religion and philosophy' (1,249). The number of periodicals dealing with 'commerce and industry', was 487, those dealing with 'medicine and health' 383 and with 'social welfare' 335 As many as 324 were mainly devoted to 'film', 247 to 'labour', 234 to 'education' and 150 to 'children'. Periodicals dealing with 'engineering and technology' numbered 208, those pertaining to 'science' 127, compared to 197 and 114, respectively in 1970.

-Fortnightly & Monthly Magazines (Circulation 50,000 and above—1974)*

1	Thuglak - Madras	150,671
2	Film Fare, Bombay	127,709
3	Stardust - Bombay	116,966
4	Femina Bombay	115,886
5	Nandan, New Delhi	112,803
6	Rani Muthu, Madras	103,939
7	Madhuri, Bombay	97,240
8	Manohar Kahaniyam. Allahabad	91,621
9	Parag, New Delhi	83,467
10	Shama, New Delhi	82,338
11	Sarita, New Delhi	78,960 (1973)
12	Star & Style, Bombay	78,690
13	Sushama, New Delhi	65,645
14	Balarama, Kottayam	63,099
15	Picture post, Madras	58,539
16	Cinema Masika, Kottayam	56,729
17	Science Today, Bombay	54,596
18	Akhand Anand, Ahmedabad	51,572

---

* *Source:* Audit Bureau of Circulations

AGE CANNOT WITHER NOR CUSTOM STALE HER INFINITE VARIETY

No champion has ever returned to reclaim his crown. This has been so, in the realm of sports. Much more so, it is, in the world of newspapers.

But Manorama, the Granny of Kerala, has returned and reclaimed her crown just for the asking, as it were. In 1938 the State government, came down on Manorama, closed her office and confiscated all her properties. She was compelled to lay down her crown, as the leading newspaper of Kerala. Other newepapers, vied with one another to take her place, while Manorama (or what was left of her) went into exile, to a neighbouring state, to keep alive her name. Though heaven was lost, all was not lost. The unconquearable will, of her illustrious editor, K. C Mammen Mappillai, remained unshaken to brave the storm.

In 1947 with the dawn of independence, Manorama came back to her home and into her own heritage. In a short while, she had regained her crown, as the leading newspaper of Kerala. Her younger contenders for the title, fell off, one by one That did not stop Manorama. It is not in her nature to rest on her laurels. She went on from one success to another. In 1973, she won the all India crown, as the largest circulated vernacular paper in India "The highest circulation says the ABC Report" attained by an Indian language daily in 1973, was 315,298, by Malayala Manorama compared to 302,681 in 1972, by the same paper".

II

The great good fortune of Manorama lay in an unbroken line of talented editors. Founded in 1888, by Varughese Mappillai, uncle of Mammen Mappillai, Manorama set for herself, very high standards of journalism, from the outset. Varughese Mappillai was a pioneer in many ways. A poet of no mean ability, he drew around himself the best scholastic and literary talent in Kerala. Very soon, Manorama became the outstanding intellectual and literary forum of Kerala.

Mammen Mappillai, his nephew, came into Manorama, with a bang. He was a versatile genius. A widely read scholar, equally proficient in Malayalam and English, he took to journalism, as other men take to pleasure. He led Manorama, into fresh woods and pastures new. He distinguished himself in banking, industry and business of all types, as no one else in Kerala did or dared. Fallen on evil days, though fallen, he lived to see his pet Manorama, rising like the Phoenix, from its ashes. K. M. Cherian, who followed his father Mammen Mappillai as Chief Editor, elevated Manorama into a newspaper of all India standing and status. When he died on March 15, 1973 Manorama had established itself as an institution in Kerala and a newspaper of reputation, throughout India.

The Manorama Family

The Manorama, as 'the Granny of Kerala' is admittedly the grand matriarch of the entire newspaper family in Kerala. She is also the proud mother of a family of brilliant youngsters, of her own.

Her first-born is the *Manorama Weekly*, started in 1956 The Weekly was a success from the very beginning. To day, it is not only the leading weekly of Kerala, but also the second highest circulated weekly in all India. "The highest circulation attained by a weekly in 1973 is 502,204 by Kumudom, Madras (Tamil) against 437,689 in 1972 Malayala Manorama Weekly came second, with a circulation of 365,401 in 1973 as against 299,605 in 1972" (A. B C. Report)

Manorama has been a pioneer from the outset. It has a built-in incentive to expand and diversify. The first deviation from pure journalism came in 1959 when it published an Year Book in Malayalam. This Year Book has been the first of its type in regional language in India and as usual with Manorama, it sells like hot cakes in Kerala and among the Malayalam-speaking population outside

An yet more daring venture was the Manorama Year Book in English, which is in the 11th year of its publication now. So far, no vernacular newspaper has ventured into the field of English publications But Manorama has dared and the daring has been rewarded. In the words of Bhavan's Journal, 'This Year Book is the best of its kind published in India" *Balarama*, a teen agers' monthly in Malayalam, is sponsord by Manorama, to fill up a great vacuum for the teen-agers. It was started in March 1972. In 1974, *Balarama* reached an average circulation 63,099 (January to June). It promises to do much more. Similarly Manorama is sponsoring a ladies magazine to fill vacuum for the enlightened ladies of Kerala.

LABOUR AND EMPLOYMENT

Working Population

The only data available about the working population of India, are those provided by the census figures. In 1961, the total workers were 42.98 per cent, the rest being non-working population. In the 1971 census the ratio of workers has gone down to 32.92 per cent and the ratio of non workers increased to 67.08 per cent. This shows that there is roughly a fall of 10 per cent in the working force during the decade 1961 1971. But a comparison between 1961 and 1971 figures is not strictly permissible, as the definitions of the worker and the reference periods were different in the 1961 and 1971 enumerations.

The fall may be attributed to these differences. It need not be treated as actual.

Distribution of Workers

The distribution of the workers among the three sectors was as follows in 1961 and 1971

Table 130

Categories	*Percentages*	
	1961	*1971*
Primary workers	72.28	72.00
Secondary workers	11.70	11.10
Tertiary workers	16.02	16.70

*Source: *Econ. Times*, May 24, 1973.

A comparison of these figures reveal two striking characteristics.

(i) During the decade, the Indian economy has been dominated by the working force in agriculture. (ii) our industries and services in the secondary and tertiary sectors have not been able to absorb, any large number of workers. In other words, the industrial development in the decade has not improved or altered the basic occupational structure of the working force in India.

Unemployment

The problem of unemployment has been growing over the last 20 years. It is strange that this should have happened in a planned economy. The Planning Commission has laid down for India a number of laudable goals and ambitious targets in various fields But at no stage has it thought of full employment for the country's millions. The number of unemployed increased steeply from Plan to Plan. In the Third Plan, the Commission gave its estimate of the number of persons unemployed and conceded the fact that unemployment had grown during the first two Plan periods In the Fourth Plan document, the Commission has skipped the issue on the plea that no reliable statistics of unemployment are available. This escapist posture has not enhanced the prestige of the Commission.

A study of the growth of unemployment (1950-51 to 1968-69) made by the Reserve Bank says, "In none of the Plan periods, employment opportunities could be created on a scale to absorb even the new entrants to the labour force leading to progressively rising backlog of unemployed. All the same, the successive Five Year Plans did succeed in providing jobs to a large proportion of labour seeking employment. For instance, during the First Plan, nearly 57 per cent of unemployed at the beginning of the Plan and new entrants to labour force during the Plan got jobs This proportion increased to slightly over 60 per cent during the Third Plan and then dropped to 47 per cent in Annual Plans."

The Government's efforts to generate more employment, including its much publicised Crash Programme to create more job opportunities have had no impact, whatsoever on the employment market.

At last

The government have at last come to recognise the seriousness of the problem and are taking a number of steps to minimise unemployment. In presenting the 1974-75 Budget, the Finance Minister said. "Despite the progress made by the schemes already initiated for providing employment, and the efforts made both by Central and State Governments, what has been done so far has not been commensurate with the magnitude of the problem. Clearly, this is a field for fresh initiatives and greater concerted effort in the years to come. Government is particularly concerned about the growing unemployment among educated persons in order to make a further dent on this problem it is proposed to undertake new programmes which will generate employment opportunities for an additional half a million educated persons in various fields and will at the same time help in the creation of durable assets, collection and compilation of valuable data, and training of an adequate number of persons to help in implementing the new programmes and projects that will be introduced in the Fifth Plan. For this purpose, a provision of Rs. 100 crores has been set apart in 1973 74 Budget But for the constraint of resources, I would have been happier to allocate a much larger sum for this purpose '

Employment Exchanges

The main agency, through which the Government tackles employment or rather unemployment are the Employment Exchanges. The Employment Exchanges Act, 1960, makes it compulsory for employers who usually employ 25 or more workers to notify their vacancies to the Exchanges

Statistics of the Employment Exchanges 'do not fully reflect the number of unemployed in the country as these include some employed people as well, who are seeking assistance from Exchanges for better jobs, while excluding unemployed who do not care to register". (*R.B.I. Bulletin*, December 1969) This is a serious lacuna and distorts the picture completely.

Table 131

Job Seekers on the Live Register of Employment Exchanges as on June 30, 1973 Statewise

State/Union Territory	*Grand Total*
Andhra Pradesh	423051
Assam	88596
Bihar	970037
Gujarat	232121
Haryana	137257
Himachal Pradesh	59969
Jammu & Kashmir	29318*
Karnataka	300218
Kerala	470460
Madhya Pradesh	414778
Maharashtra	631580
Manipur	56049
Meghalaya	69281
Orissa	233216
Punjab	189320
Rajasthan	187235
Tamil Nadu	543238
Tripura	39230
Uttar Pradesh	805374
West Bengal	1474953
Chandigarh	23234
Delhi	192550
Goa	16981
Laccadives	1447
Mizoram	2747
Pondicherry	16021
All India	7595961

* Excludes figures for University Employment information and Guidance Bureaus except for two in Delhi (Delhi and Jamia Millia Universities)

Source: Records & Statistic Nov 1973

Table 132

Educated Unemployed

Number of Educated Person on the Live Register of Employment Exchange and Placements effected 1970–73

	Number of live register at the end of each year				*Number of placements effected*			
At the end of	*Matriculates*	*Higher Secondary & Intermediates*	*Graduates and Post Graduates*	*Total*	*Matriculates*	*Higher Secondary & Intermediates*	*Graduates and Post Graduates*	*Total*
1970	11,01,194	4,43,884	2,76,538	18,21,616	1,07,934	32,753	36,362	1,77,049
1971	12,96,801	6,05,222	3,93,541	22,95,564	1,18,769	41,687	48,056	2,08,512
1972	17,35,451	9,35,458	6,03,273	32,74,182	1,05,817	44,129	49,221	1,99,667
1973 Jan - June	18,68,852	9,77,925	6,75,249	35,22,026	57,800	23,421	25,020	1,06,241

Source: Records & Statistics Nov. 1973.

Table 133

Job Seekers[†] on the Live Register of Employment Exchanges by Educational Levels (as on June 30, 1973)

Education Level	*No. on Live Register*
Matriculates	18,72,725
Persons who passed Higher Secondary (including Intermediates/Under graduates	9,77,831
Graduates (including post graduates) Total:	6,74,839
Arts	2,89,328
Science	1,95,114
Commerce	91,866
Engineering	20,927
Medicine	6,034
Veterinary	282
Agriculture	10,555
Law	2,757
Education	2,725
Others	5,701
Total	35,25,395[*]

[†] Exclude figures for University Employment Information and Guidance Bureaus except for two in Delhi (Delhi & Jammia Millia Universities)

Source: Records & Statsitics Nov. 1973.

Labour and Management

Labour-Management relations during 1972 were considerably disturbed. The provisional figure of man-days lost during 1972 is 17.92 million as against the provisional figure of 13.65 million and the final figure of 16.55 million during 1971.

Table 134

Number of Industrial Disputes, Workers Involved and Mandays Lost (State-wise)

State/Union Territory	*No. of disputes*		*No. of Workers involved (in thousands)*		*No. of mandays lost (in lakhs)*		
	1970	*1971*	*1970*	*1971*	*1970*	*1971*	*1972 (P)*
State							
Andhra Pradesh	163	109	61	62	6.63	3.83	1.15
Assam	18	20	14	19	0.28	0.66	0.27
Bihar	205	168	101	84	9.88	13.60	8.89
Gujarat	91	129	57	29	3.60	1.43	2.99
Haryana	53	48	12	11	1.43	1.02	0.78
Himachal Pradesh	6	3	20	2	0.40	0.90	Neg
Jammu & Kashmir	4	6	9	Neg	0.28	Neg	0.16
Karnataka	108	102	54	37	4.43	6.78	7.03
Kerala	283	274	80	202	6.85	31.32	21.52
Madhya Pradesh	170	150	83	92	3.51	3.99	5.87
Maharashtra	704	717	388	465	23.64	21.78	34.21
Orissa	29	21	9	19	1.54	1.37	0.68
Punjab	26	16	71	33	1.38	1.59	0.23
Rajasthan	39	68	16	21	1.75	1.93	2.02
Tamil Nadu	279	325	176	133	18.21	10.03	39.25
Tripura	11	4	2	Neg	0.53	0.55	0.40
Uttar Pradesh	220	196	108	109	6.32	7.99	3.79
West Bengal	405	316	508	250	111.58	44.45	45.94
Union Territory							
Delhi	42	63	26	39	2.06	3.10	0.60
Goa	14	10	11	4	0.22	0.05	0.14
Other Union territories	19	7	20	2	0.46	0.04	3.27
Total	2,889	2,752	1,827	1,615	205.63	165.46	179.21

Wages. The payment of wages is governed by the Payment of Wages Act, 1936 and the Minimum Wages Act, 1948, as amended subsequently. The former extends to the whole of India and applies to persons employed in any factory as defined in the Factories Act, 1948, and in any railway-receiving wage and salaries which average below Rs. 400 a month. The Act has been extended to mines, plantations, docks, wharfs or jetties in the ports of Bombay, Calcutta and Visakhapatnam, oil-fields and certain other establishments.

Minimum Wages. The Minimum Wages Act, 1948, empowers the Central/State Governments to fix the minimum rates of wages to employees in industries specified in the Schedule. Such rates have been notified and enforced in most of the states.

Bonus. Demands were made by the workers' organisations for a revision of existing formula embodied in the Payment of Bonus Act, 1965, with the object of increasing the quantum of minimum and maximum bonus and also to enlarge the coverage of the Act

There was an atmosphere of discontent in the entire industrial sector over the issue of bonus in 1971. A strike was threatened by some trade unions and a temporary agreement was reached on Sept. 22, 1971 at Bombay.

It has since been decided that a minimum bonus of 8⅓ per cent was to be paid to every worker, irrespective of profits earned by the company and that the entire bonus is payable in cash. The decision has been brought into force by a Presidential Ordinance, on Sept 23, 1972.

Amendment of the Act

The Bonus Act has been amended to provide that.

(i) the statutory minimum of the bonus payable to workers covered by the payment of Bonus Act is raised from 4 per cent to 8⅓ per cent for the accounting year commencing on any day in the year 1971, and

(ii) payment be made in full in cash to all persons covered by the Payment of Bonus Act upto 8 1/3 per cent where payments, more than 8 1/3 per cent are to be made during the said accounting year, the positive i. e. plus difference, if any, between the payments to be made during the said accounting year 1970-71 (where they were in excess of 8⅓ per cent) will be deposited into the provident fund account of the beneficiaries

TRADE UNIONS

The Trade Union Act of 1926, as amended in 1947, governs the organisation and working of trade unions. The Act makes it obligatory for employers to recognize trade unions, provides for labour courts and specifies what activities on the part of trade unions and employers are permissible in law.

The trade union movement in India from its inception had been dominated by Communists and Crypto-Communists. In 1929 political considerations came into the open. At the meeting of the All India Trade Union Congress in Nagpur in December, 1929 under the chairmanship of Jawaharlal Nehru, the Communist faction insisted that the AITUC should toe the Moscow line not only in the class struggles of the working class but also in the international field. The movement now frankly political, passed into the hands of outsiders with political affiliations.

INTUC. The Indian National Trade Union Congress, was organised by Indian National Congress leaders, as a national movement, without any political associations, national or international.

HMS. Hind Mazdoor Sabha was originally organised by the Praja Socialist Party. Subsequent factions in the party have materially affected the growth of HMS and split it up into different units.

CITU. The Centre of Indian Trade Unions was formed by the Marxist faction of the Communist Party. The CITU is a breakaway union from the AITUC.

All these unions owe their existence to and draw their strength from the political parties with which they are associated. This explains the uneasy relations obtaining in India between employers and employees in the industrial field in both public and private sectors and the agitations in governmental and semi-governmental services. Judged by the present trends, this politicalisation of unions does not augur well for the political or economic future of India.

Non-political Unions. There are many trade unions that have no open political affiliations like the United Trade Union Congress (UTUC) and the National Federation of Indian Railwaymen.

Table 135

Registered Trade Unions and Membership

Particulars	*State* 1968 (P)	*Unions* 1969 (P)
Number of Unions on register	16,121	16,694 (E)
Number of Unions submitting returns	8,415	2,272 †
Membership of Unions submitting returns	4,148,120	870,866 †

(P) Provisional.

† Incomplete-Andhra Pradesh, Assam, Bihar, Maharashtra, Rajasthan, T. Nadu, UP, W. Bengal and Manipur are excluded.

(E) Estimated by repeating the previous year's figures in respect of those States from where the returns have not been received.

Table 136

Membership of All India Organisations

Name of organisation	*Membership* 1966	1968
Indian National Trade Union Congress	1,417,553	1,326,152
All India Trade Union Congress	433,564	634,802
Hind Mazdoor Sabha	436,977	463,772
United Trade Union Congress	93,454	125,754
Total	2,381,548	2,550,80

Source. INDIA-1973

NATIONAL REGALIA

National Emblem

The National Emblem is an adaptation from the Saranath Lion Capital of Asoka. In the National Emblem three lions as depicted in the Saranath Capital, stand back to back. The Wheel of Law (Dharma Chakra) appears in relief at the centre. A bull and a horse are seen on the right and left of the wheel. The motto Satyameva Jayate (Truth alone triumphs) is inscribed below the emblem in Devanagari script

National Flag

The National Flag is a horizontal tricolour with deep saffron at the top, white in the middle and dark green at the bottom in equal proportions. The ratio of width to length of the flag is 2:3. In the centre of the white band is a wheel in navy blue, designed on the pattern of the wheel in Saranath Lion Capital, but representative of the Charkha.

National Anthem

Rabindranath Tagore's song "Jana-gana-mana" was adopted as the National Anthem of India on Jan 24, 1950. The song consists of five stanzas of which only the first is sung on ceremonial occasions It reads as follows:

Jana-gana-mana-adhinayaka, Jaya he
Bharata-bhagya-vidhata.
Punjaba-Sindhu-Gujarata-Maratha-Dravida Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga Uchchhala-Jaladhi-taranga
Tava subha name jage,
Tava subha asisa mage,
Gahe tava jaya-gatha.
Jana-gana-mangala-dayaka, jaya he Bharata-bhagya-vidhata.
Jayahe, jaya he, jaya he,
Jaya jaya jaya, jaya he.

The following is Rabindranath Tagore's English rendering of the stanza.

Thou art the ruler of the minds of all people,
dispenser of India's destiny.
Thy name rouses the hearts of the Punjab, Sind, Gujarat and Maratha,
Of the Dravid and Orissa and Bengal;
It echoes in the hills of the Vindhyas and Himalayas.
Mingles in the music of the Jamuna and Ganges
And is chanted by the waves of the Indian Sea.
They pray for thy blessings and sing thy praise.
The saving of all people waits in thy hand,
thou dispenser of India's destiny.
Victory, Victory, Victory to thee.

National Calendar

The idea of a National Calendar took shape some time after Independence. In 1952 a committee was appointed to examine the different calendars in use in the country and to suggest a uniform National Calendar for the whole of India The committee's recommendation that the Saka era, one of the old Indian eras may be adopted as the National Calendar was accepted by the Government

The Saka year has the normal 365 days and begins with Chaitra as its first month. The days of this calendar have a permanent correspondence with the dates of the Gregorian Calendar, Chaitra 1, falling on March 22, in a common year and March 21, in a leap year. The new National Calendar, was adopted from March 22, 1957 corresponding to Chaitra, 1, 1879 Saka. The Saka era is 78 years behind the Christian era

EDUCATION AND RESEARCH

EDUCATION is a State subject under the Constitution. But the Central Government is invested with certain specific responsibilities. It has powers to co-ordinate the educational policies of the various states. Higher education, scientific and technical training and research are the special responsibilities of the Central Government. The administration of five Central universities—Aligarh, Banaras, Delhi, Viswa Bharati and Nehru Universities—is vested entirely in the Central Government.

Education and Literacy

It is a sad commentary on our development plans, that our progress in literacy should be read as progress in illiteracy. Roughly speaking, India was in 1941, 15 per cent literate, in 1951 20 per cent, in 1969 25 per cent and in 1971, 30 per cent literate. But while we have improved our percentages of literacy, we have also increased the total number of our illiterates. Not excluding toddlers, India had 270 million illiterates in 1941, 300 million in 1951, 334 million in 1961 and 386 million illiterates in 1971. (See also Population Supra.)

SCHOOL EDUCATION

It is a Directive Principle of the Constitution that the State should provide free and compulsory education to all children up to the age of 14. In pursuance of this Directive, all States have introduced free primary education and most States have enacted legislation for compulsory education. But the progress is very slow, if not stagnant.

The position varies widely between States. Educationally advanced states like Kerala or T. Nadu, can easily attain the objective of universal education in the age group 6 to 11 by 1975-76. The middle group of states like A P or W. Bengal will have to increase their enrolment rates 3 to 4 times in order to reach the target. States in the lowest group like Bihar, Rajasthan and M P will have to increase their enrolment more than five or six times to achieve universal education in the 6 to 11 age group.

Number of Schools*

	1970 71
No. of primary schools	404,411
No. of middle schools	88,587
No. of high/higher secondary schools	35,773

According to the figures available from the various States, the enrolment in classes I V is 605 lakhs or 80 per cent of the total population in the age group of 6-11 for the country as a whole. By 1975—76, this will have to be increased to 915 lakhs (at 11 per cent of the population in the age group of 6 11) or by about 50 per cent.

In the decade 1961 71, the average increase in enrolment in classes I—V was about 25.5 lakhs. This will have to be increased in the next five years to an average annual increase of 62 lakhs. The total effort for expansion of primary education at this stage, therefore, will have to be stepped up by about 150 per cent on an all India basis.

The position in respect of facilities provided for in the age group of 11-14 is "far more unsatisfactory". The total enrolment in classes VI to VIII for the country as a whole is 142 lakhs or 35 per cent of the population in the age group of 11-14. This will have to be increased to 454.94 lakhs by 1980 81 if all the children in the age group have to be covered by that date.

In the decade 1961-71, the average annual increase of enrolment in classes VI–VIII was only 7.54 lakhs. If universal education in the age group of 11 14 is to be provided by 1980-81, this effort will have to be increased to 31 lakhs per year, or to about four times *

Source: *Hindustan Times*, Delhi Oct. 15, 1972.

---

* Source: *INDIA 1973.*

HIGHER EDUCATION

Post secondary education in India is imparted through arts and science, professional and special education colleges, research institutions and universities.

Universities

The first universities in India were established in 1857, in the Presidency towns of Bombay, Calcutta and Madras. In 1948 there were only 20 universities in the whole of India. The number of universities, including those deemed to be universities increased to 101 in 1973 The number of colleges Increased from 1542 in 1960-61 to 4158 in 1972 73. The total students enrolment increased from 1.03 million in 1960 61, to an estimated 3.86 million in 1973-74. The post-graduate students rose from 59,000 in 1960-61 to 2,33,277 (estimated) in 1973-74. By 1970 their number had grown to 86 and the number of colleges had risen to 2,792 from 542 in 1951.

The University Grants Commission constituted in 1953, promotes and co-ordinates university education in India and maintains standards of teaching, examination and research in the universities.

De facto Universities

Besides universities, there are a number of other institutions which impart higher education and are therefore deemed to be universities. Among such are—The Birla Institute of Technology and Science, Pilani; Indian Agricultural Research Institute, New Delhi; Indian Institute of Science, Bangalore; Jamia Millia Islamia, New Delhi; Gujarat Vidyapeeth, Ahmedabad; Gurukul Kangri Viswavidyalaya, Hardwar (UP; Kashi Vidyapeeth, Varanasi (UP); Tata Institute of Social Science, Bombay and the Indian School of Mines, Dhanbad.

TECHNOLOGY

Indian Institutes of Technology

Though many universities offer facilities for higher education in technology, some institutions have been equipped to specialise in them. These are the five Indian Institutes of Technology at Kharagpur, Bombay, Madras, Kanpur and New Delhi. The Indian Institutes of Technology (IIT) follow advanced modern lines and form the vanguard of scientific and technical education in India. The I. I. T. Kharagpur, the first of its kind started functioning in 1951. The I. I. T. Bombay was opened in 1958, I. I. T. Madras in 1959 and I. I. T. Kanpur in 1960. The College of Engineering and Technology in Delhi was elevated into the I. I. T. Delhi, in 1963.

In addition to the I. I. Ts there are 14 Regional Engineering Colleges sponsored by the Central Government, and other engineering colleges and technological institutions maintained by State Governments and private organisations. The sanctioned annual intake of these institutions both for degree and diploma courses increase to 72,190 in 1967. But as more and more graduates and diploma holders found themselves unemployed, admissions to these institutions were progressively reduced to 45,749 in 1971.

Table 137

Indian Institute of Technology at	*Enrolment during 1973-74*		
	Under graduate	*Postgraduate and research*	*Total*
Kharagpur	1835	577	2412
Bombay	1365	723	2088
Madras	1276	837	2113
Kanpur	1281	711	1992
Delhi	1144	723	1867
Total	6901	3571	10472

Agricultural Universities are another group of specialised institutions, that have become popular since the sixties. In 1973, there were about 20 agricultural universities in the country

RESEARCH

Research is primarily organised by five major national organisations.

(1) The Council of Scientific and Industrial Research (CSIR), (2) The Indian Council of Medical Research (ICMR), (3) The Central Council for Research in Indian Medicine and Homeopathy, (4) The Indian Council of Agricultural Research, and (5) The Department of Atomic Energy and Space Research and Science and Technology.

The CSIR controls thirty national laboratories and Research Centres including two museums.

The Indian Council of Medical Research is mainly responsible for the co-ordination of research work in 22 national institutions and several regional institutes.

The Central Council for Research in Indian Medicine and Homeopathy have opened five research units.

Pharmacopoeia Laboratory for Indian Medicine, Ghaziabad,
Ayurvedic Research Institute, Patiala,
Ayurvedic Research Institute, Kerala,
Siddha Research Institute, Hyderabad,
Homeopathy Research Institute, Calcutta.

The Indian Council of Agricultural Research functions through a net work of 23 National and Central scientific institutes, 17 agricultural universities and 69 all India co-ordinating agencies.

Atomic Energy and Space Research

The main Research Establishments are: Bhaba Atomic Research Centre, Trombay (Bombay); Tata Institute of Fundamental Research, Bombay; Saha Institute of Nuclear Physics, Calcutta; Thumba Equatorial Rocket Launching Station TERLS), Trivandrum; Space Science and Technology Centre, (Trivandrum); Experimental Satellite Communications Earth Station, Ahmedabad and Physical Research Laboratory, Ahmedabad

Science and Technology

In 1971, the Department of Science and Technology was established to co ordinate researches in different branches of Science and Technology The main Institutions functioning under it are:

1 Survey of India, Dehra Dun,
2 Botanical Survey of India, Calcutta.
3 Zoological Survey of India, Calcutta.
4 Geological Survey of India, Calcutta.
5 Central Water, Power and Irrigation Research Centre, Khadakvasla, Poona.
6 Indian Meteorological Department, New Delhi.
7 Indian Institute of Tropical Meteorology, Poona.
8 Indian Institute of Astrophysics, Kodaikanal.
9 Indian Institute of Geomagnetism, Bombay.
10 Forest Research Institute, Dehra Dun.
11 Anthropological Survey of India, Calcutta.

Other Institutions

1 Bose Institute, Calcutta.
2 Birbal Sahni Institute for Paleobotany, Lucknow.
3 Indian Association for the Cultivation of Science, Calcutta.
4 Wadia Institute of Himalayan Geology, Delhi
5 Maharashtra Association for the Cultivation of Science, Poona.
6 Raman Research Institute, Bangalore
7 Physical Research Laboratory, Ahmedabad.
8 Shri Ram Institute for Industrial Research, Delhi
9 Himalayan Zoological Park, Darjeeling.
10 Indian National Science Academy, Delhi.

HEALTH AND SOCIAL WELFARE

HEALTH

THOUGH Public Health is a State subject, the Central Government plays a vital role in health programmes. The broad objectives of the health programmes in the last decade have been to control and eradicate communicable diseases to provide preventive and curative health services in rural areas and generally to improve the standard of health of the people at large.

Medical Systems

There are two main systems of medicine in India, (1) The Allopathic or the Western system and (2) The Ayurvedic or the Indian System. The Unani System and the Homeopathic Systems are two other systems, which are popular in India. The Unani system in fact, the Arabic system introduced in India, during the days of the Muslim Sultanates This is now considered a branch of the Indian system. The Homeopathic system has recently been recognised by the government, under the Homeopathy Central Council Act, 1973. (See also General Information-Medicine and Health)

Medical Organisations

Medical Council of India. This was established under the Indian Medical Council Act 1956 for the maintenance of uniform standards of Allopathic medical education in the country. The Council maintains the Indian Medical Register The number of doctors borne on the Register as on December 31, 1972-163,084.

The Dental Council of India, established under The Dentists' Act, 1948 regulates the profession of dentistry The council maintains a register of dentists.

As on April 1, 1973, there were 5692 registered dentists in India.

The Pharmacy Council of India, established under the Pharmacy Act, 1948, regulates the education and training of pharmacists. At the end of Dec. 1972, there were approximately 5900 registered pharmacists in India.

The Indian Nursing Council, formed under the Indian Nursing Act, 1947 regulates and maintains a uniform standard of training for nurses, midwives and health visitors. It maintains the Indian Nursing Register, which contains the names of all the nursing personnel.

The Indian Council of Medical Research (ICMR) controls and regulates researches in Allopathic medicine in India. The Director General ICMR is the chief executive authority

The Central Council of Indian Medicine was formed in Sept. 1971 to supervise education in and practice of Indian medicine. It prescribes the minimum standards of education in Indian medicine and maintains an All India Register of Practitioners of the Indian System of Medicine (ISM).

Life Expectancy

Life Expectancy in India has gone up to 50.7 for males and 49.3 for females in 1974 as against 32.45 and 31.66 in 1946.

National Health Programmes

(1) National Malaria Eradication Programme (N. M. E. P.)

Malaria had practically been brought under control in India, but it has shown signs of resurgence from 1972. Ten states in India are the most affected. They are: Gujarat, MP, Maharashtra, Rajasthan, Karnataka, Punjab, Orissa, Haryana, Assam and Arunachal Pradesh

During 1973, 14,98,961 cases of malaria were reported as against 13,62,806 during 1972. The National Malaria Eradication Programme started in 1953 is being reactivated in India.

(2) National Smallpox Eradication Programme N. S. E. P:

The incidence of smallpox declined continuously from 1968 to 1970 but thereafter there has been a rising trend in the figures of incidence. As against 27,407 cases and 5,457 deaths in 1972, during 1973 (upto the 15th December), 77,904 smallpox cases with 14,001 deaths were reported. Of these 94 per cent cases were reported from four States viz , Uttar Pradesh, Madhya Pradesh, West Bengal and Bihar. The transmission has been interrupted in Maharashtra, Punjab Haryana and Delhi. Intensive surveillance and outbreak containment campaign has been launched throughout the country for interrupting smallpox transmission in States with low incidence and for reducing the incidence in the four major endemic States.

(3) National Filaria Control Programme (NFCP)

It is estimated that about 136 million persons live in the filarious areas of the country About 8 million people are having various filarial disease manifestations and about 12 million people in the endemic areas have microfilaria in their blood. In 1973, there were 120 control units and 12 bureaus, giving protection to about 13 million persons in endemic areas.

(4) National T. B. Control Programme

It is estimated that there are nearly 8 million active TB cases in the country of which nearly 2 million are infectious.

A total of 547 T B Clinics are now functioning in the country covering almost all the major States. Approximately 39,500 TB beds have been established. Nearly 300 BCG vaccination Teams are offering BCG vaccination to persons in the age group of 0 20 years

By October 1973 a total of 251.49 million persons had been tuberculin tested and 168.46 million persons had been BCG vaccinated since the inception of the programme in 1949. More BCG vaccination teams are being raised and vaccination of new borns and infants is being introduced as part of the immunisation programme.

(5) National Leprosy Control Programme

It is estimated that out of a total of 11 million leprosy patients in the world (1971), over 3.1 million were in India. T. Nadu and AP account for nearly 50 per cent of India's total number of leprosy patients as under:- T Nadu 7.83 lakhs, AP 6.28 lakh, Bihar 3.39 lakhs, W. Bengal 13.04 lakhs, Maharashtra 2.8 lakhs and UP 1.68 lakhs Leprosy control clinics are established in all areas, where the prevalence of rate of leprosy is one per cent and above.

(6) National Cholera Control Programme

Cholera is endemic in certain areas of the country, specially in the States of Bihar, West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra From January to November

---

Source: Answer in Parliament.

1973, 34,972 cases and 4,009 deaths due to cholera were reported in the country as against a total of 20,916 cases and 2,849 deaths during 1972. The case fatality rate during 1973 has declined to 11·5 per cent as against 13 4 per cent in 1972.

(7) National Trachoma Control Programme

Trachoma and associated infections constitute a major public health problem and the single most important cause of preventable blindness About 4.5 million are estimated to be blind in India in comparison to the total world estimates of about 15 million. About 60 80 per cent of this blindness is preventable.

Of the 329 million people exposed to this infection, 110.66 million have been covered under the control programme till 1974. An additional population of 72.03 million will be covered in 1974 75

(8) National Goitre Control Programme

Endemic goitre, a nutritional deficiency disease, is prevalent in the southern slope of Himalayas covering a distance of 1,500 miles consisting of the northern parts of J. & K, Punjab, Haryana, Himachal Pradesh, Bihar, W. Bengal, Nagaland, Arunachal Pradesh and Manipur. About 40 million people are living in this goitre belt, out of which 9 10 million people are estimated to be affected with goitre. Iodised salts, are being distributed in the endemic areas. By 1973, 82,389 metric tonnes of iodised salts were supplied to the endemic states.

(9) National V. D. Control Programme

According to a WHO survey about 200 million people suffer from Venereal Diseases in the world. Roughly, 20 million of them are in India. In these days of 'permissiveness' incidence of VD among teen-agers, has become a world-wide problem. It is found, that the teenagers that is, boys and girls between thirteen and nineteen years of age form the second biggest group of V.D. patients in India. The biggest group consists of persons in the 20-30 age group.

By the end of 1972-73, 39 V.D clinics were working in different states. In 1973-74, these clinics examined and treated 128,029 V.D patients in India.

Cancer is to-day, the number 4 killer in India's urban centres and is believed to affect one out of every thousand people in the country. According to statistics collected by the ICMR cancer of the mouth, cancer of the female breast and genital organs constitute over 60 per cent of all malignant tumours in India with oral cancer topping the list. In Visakhapatanam where reverse smoking (putting the lighted end inside the mouth) is common the incidence of oral cancer has been found to be higher.

A number of institutions in India is carrying on cancer research and treatment The most important among them are the Indian Concer Research Centre, Bombay; the Cancer Institute, Madras, the Chittaranjan National Cancer Research Centre, Calcutta; Radium Institute and Cancer Hospital, Calcutta; Cancer Institute, Kanpur; Mission Hospital, Neyyoor and S.M.S. Medical College, Agra.

Mental Diseases According to Dr. P Wahi, Director General of the ICMR about 13 million of the country's population suffer from mental diseases. A population survey conducted at the Agra Mental Hospital for the last seven years in UP had shown that there were 190,000 patients suffering from schizophrenia and 287,000 from functional psychosis.

Psychiatric clinics for treatment of mental diseases are being set up in all the States in India.

Malnutrition

Malnutrition is one of the major factors, responsible for the high mortality and morbidity rates in India. The National Institute of Nutrition, Hyderabad reports that 65 per cent of India's toddlers (age group 1 to 5) in the lower income levels, suffer from moderate malnutrition and 18 per cent from severe malnutrition. In March 1973 the Health Ministry said in the Lok Sabha, that about 60 million children of this group are badly under nourished. The reason is not 'protein starvation' as some UN reports suggested but overall calory starvation.

It is estimated that nearly one million toddlers die every year in India Although this group (1 to 5 years) constitutes only 16.5 per cent of the population, it accounts for 40 per cent of the total deaths. Large numbers of children in this group, if they survive childhood starvation, are doomed to retarded physical and mental development. The Nutrition Programme through Day-care centres, is intended to provide children between three and five yeras, with nutritious food to make up for their nutritional deficiency.

The special Nutrition Programme of Supplementary Nutrition was introduced, in 1970-71 for children of 0-3 age group in the low income classes.*

---

* Source: *E.N.S Report*. Ind. Exp. July 6, 1973.

SOCIAL WELFARE

The Central Social Welfare Board was set up in August 1953. Its functions are to survey the needs and requirements of social welfare organisations, evaluate their programmes and projects, co-ordinate the assistance given by the States and the Centre and promote the development of voluntary organisations where there are none. Social welfare advisory boards have been set up in different States.

Family Planning. The Government of India was the first government in the world to adopt family planning as an official programme and to include it in its Five Year Plans. This programme is intended to reduce the birth rates and to stabilise the population at a level consistent with the requirements of national economy.

The scheme is gigantic. It has to cover at least 90 million couples in the reproductive age group. It is worked as a voluntary programme. Freedom is given to people to adopt any of the approved methods of contraception available, both for limiting families and spacing children.

The Central Family Planning Board was constituted in 1956 to formulate family planning programmes. Family Planning Boards are functioning in all the States. Full time family planning officers are appointed in the States.

National Institute of Family Planning

The broad objectives of the National Institute of Family Planning, which is an autonomous institute, are (i) to develop more effective methods of applying the relevant knowledge already available for strengthening the family planning movement; and (ii) to discover new knowledge related to its educational, social, medical, biological, statistical, demographic and organisational aspects. The Institute provides training to trainers of Regional Family Planning Centres and other special groups, coordinates and conducts research in multi-disciplinary areas, publishes monographs, technical reports and papers and renders consultative, clinical, reprography and data processing services.

Impact

It is estimated that by Sept. 1973, 154.85 lakh married couples, within the reproductive age-group 15-45 have been protected by the acceptance of various methods under the family planning programme. Of these 117.16 lakh (11.4% of the target couples) are accounted for by sterilisation, 13.60 lakh (4.3%) by IUD and 24.08 lakh (2.3%) by C. C users.

It is estimated that 13.0 million births had been averted by March, 1973 and another 1.7 million births during April to September, 1973, bringing the total to 14.7 million births by September, 1973. As a result of the work done upto September, 1973, since the inception of the programme, a total of 41.3 million births will be eventually averted by 1995-96.

IUCD

The Intra Uterine Contraceptive Device in use in India is the Lippe's Loop. A total of 47.78 lakh IUD insertions has been made by 1973. This gives a rate of 8.3 per thousand coverage. Assam, Haryana, Himachal Pradesh, Jammu and Kashmir, Kerala, Karnataka, Orissa, Punjab and Manipur lead all other states in this programme.

Conventional Contraceptives (c.c) in India include condoms, diaphragms, foam tablets and contraceptive jellies. 'Nirodh' condom is at present the most popular device. Users of conventional contraceptives numbered 20 lakhs* (2 per cent of the reproductive group) in November 1972.

During the first six months of the current year, there were an estimated number of 24.80 lakh conventional contraceptive users as against 2.11 lakh in the corresponding period last year.

Among conventional contraceptives, Nirodh continued to occupy a prominent position and accounted for about 95% of the couples covered under conventional contraceptives. The remaining 5% used diaphragms, foam tablets, jellies etc.

Pills

Till June 1973, 74,514 women had taken to pills. 31,836, of these are still continuing it.

Sterlisations include both vasectomy and tubectomy. About 51 per cent of the acceptors of family planning have resorted to this method.

Abortions

The Medical Termination of Pregnancy Act 1971, and the Rules and Regulations made thereunder have been declared effective from 1st April 1972. Abortions are now legally permitted under conditions prescribed in the Act.

---

* It is suspected that Nirodh is being extensively used among unmarried persons.

Prohibition of intoxicant drinks and drugs had been one of the pet ideas of Mahatma Gandhi. Ever since the first Satyagraha movement, Gandhiji had propagated the idea of prohibition. Prohibition is enshrined in the Constitution as one of the Directive Principles of State policy. The Department of Social Welfare has been trying to persuade the State Governments to adopt and enforce prohibition. Some States have enforced prohibition in certain selected areas. Other steps taken are prohibition of certain classes of liquor, reduction of alcohol content in drinks, prohibition of the sale of liquor on certain specified days or to persons below 21 years Gujarat is the only state that has been totally dry for sometime Tamil Nadu, has gone back to prohibition in 1974 after having gone without it for 2 years

Drug Addiction

Opium has been banned in India, for a long time, except for medical purposes Ganja (Cannbis) in any form is totally banned. Nevertheless, drug addiction is wide spread. According to the United Nations Drug Commission there are 80,000 people in India taking opium and 200,000 taking ganja

Immoral Traffic in Women

Immoral traffic in women and girls, is a punishable offence under the Penal Code. The penal Code is supported by a special Act, the Suppression of Immoral Traffic in Women and Girls Act 1956, which provides for the suppression of immoral traffic in terms of the International Convention signed at New York in May 1950.

Immoral Traffic Act, has sent all brothels underground and all prostitutes into privacy It is, therefore difficult to estimate their number. However, offences under the Act, still continue and are apprarently on the increase. In a note submitted to the government by the Central Advisory Board for correctional services in Jan, 1974, it is pointed out that offences under the Act have increased by 36 per cent from 1971 72. The actual number of cases in states and 4 Union Territories together was 9330 in 1972, as against 6841 in 1971 The states are Andhra Pradesh, Gujarat, Haryana, Kerala, Madhya Pradesh, Maharashtra, Manipur, Karnataka, Orissa, Tamil Nadu and U. P and the Territories, Delhi, Goa, Pondicherry and Lakshadweep.

BACKWARD CLASSES

THE term "Backward Classes" includess the Scheduled Castes and Tribes, Denotified Nomadic and Semi-nomadic tribes and other backward classes

Harijans

Indian Society through the centuries had evolved on the basis of caste. This evolution stratified the people into a social hierarchy. Those at the lowest rungs were a down-trodden lot, spurned alike by all other castes. Long before Independence, these people known as the depressed classes, attracted the attention of all social reformers Gandhiji christened them Harijans and fought all his life to improve their lot and raise their status. With independence,. these Harijans came into their own. The Constitution of India not only conferred on them equal rights with others but also gave them a number of concessions and preferences. These people are known as Scheduled Castes in the Constitution.

Girijans

Another group of depressed classes is represented by the tribals inhabiting the hilly tracts These tribes scattered throughout India, belong to different ethnic groups and have widely varying cultures. They are completely cut off from the main stream of national life and eke out their existence in the hills and forests These people are now conveniently dubbed together as Girijans or hill people. These are the Scheduled Tribes under the Constitution.

The Scheduled Castes and Scheduled Tribes have to be notified as such by the President under Arts 341 and 342 respectively, so as to enable them to enjoy the preferential rights conferred on them by the Constitution.

Nomadic and other backward classes

These are recognised and listed by the state governments and Union Territories, where they are found. As these lists are often revised by states, to include new communities or to exclude old ones. no firm figures are available, either about the number of communities listed or the total number of persons, who belong to these categories.

Scheduled Castes and Tribes

According to the 1971 census, the population of scheduled castes and scheduled tribes was 79,995,896 and 38,015,162 respectively, comprising 14.68 per cent and 6.94 per cent of the total population of India (see also Population supra).

Constitutional Rights

The Constitution of India provides a number of safeguards to protect and promote the interests of the Scheduled Castes and Scheduled Tribes. Briefly these are:

(i) the abolition of 'untouchability' and the forbidding of its practice in any form (Art 17);

(ii) the promotion of their educational and economic interests and their protection from social injustice and all forms of exploitation (Art 46);

(iii) the throwing open of Hindu religious institutions of a public character to all classes and sections of Hindus (Art. 25);

(iv) the removal of any disability, liability, restriction or condition with regard to access to shops, public restaurants, hotels, and places of public entertainment, the use of wells, tanks, bathing ghats, roads and places of public resort maintained wholly or partly out of State funds or dedicated to the use of the general public (Art. 15);

(v) the curtailment, in the interests of any scheduled tribe, of the general rights of all citizens to move freely, settle in, acquire property or practice any trade or business to the prejudice of the tribes (Art. 19 (5));

(vi) the forbidding of any denial of admission to educational institutions maintained by the State or receiveing aid out of the State funds (Art 29);

(vii) the obligation of the State to consider their claims in the making of appointments to public services and make reservation for them in case of inadequate representation (Arts. 16 & 335);

(viii) special representation in Parliament and the State legislatures till 25th Jan. 1980 (Arts. 330, 332, and 333);

(ix) prohibition of traffic in human beings and forced labour (Art.23);

(x) the setting up of advisory councils and separate departments in the States and the appointment of a special officer at the Centre to promote their welfare and safeguard their interests (Art 164 and 338 and Fifth Schedule), and

(xi) special provision for the administration and control of scheduled and tribal areas (Arts, 244, 275 and Fifth and Sixth Schedules).

Representation in Services. For the Scheduled Castes, reservation is 15 per cent of the vacancies for which recruitment is made by open competition on an all-India basis and 16 2/3 per cent of the vacancies. to which recruitment is made otherwise For the Scheduled Tribes, the reservations is 7½ per cent in both cases Reservation in direct recruitment to Classes III and IV posts which normally attract candidates from a locality or region are fixed in proportion to the population of the SC and ST in the respective States and Territories

"Figures given below show the progress of these tribes in employment"-

Table 138

	As on 1-1 1967		As on 1 1 1972*	
	Scheduled Cas			
I	125	1.91	831	97
II	,055	2.98	1,853	17
III	1,02,590	9 03	1,42,[illegible]88	72
IV	2,12,003	18.22	2,17,264	.24
	Scheduled Tribes			
	74	0.33	139	.50
	87	0 25	193	43
	,490	1.39	25,178	.71
IV	.527	3 57	45,305	.80

* The figures as on 1-1-1972 are provisional

// Excluding sweepers.

The representation of the Scheduled Castes and the Scheduled Tribes in the All India Services are given below:-

Table 139

Name of Service	*Scheduled Castes* 1-1-1967		*Scheduled Tribes* 1-1-1967	
	1-1-1967	*1-1-1973*	*1-1-1967*	*1-1-1973*
ICS/IAS	128	229	45	100
IP/IPS	77	116	22	34
Indian Forest Service	*	31	- *	20

The Service was constituted in 1966, on the basis of the first competitive examination held in September, 1967 6 Scheduled Castes and 3 Scheduled Tribes candidates were appointed.

Education. The Government of India has taken a number of measures to provide increased educational facilities to the Scheduled Castes and Tribes, especially in vocational and technical training The concessions include free tuition, stipends, scholarships and the provision of books, stationery and other equipments Midday meals are also provided in almost all places. Reservation of seats, lowering of minimum qualifying marks and raising the maximum age limit for admission in all educational and technical institutions are among the other concessions enjoyed by the Scheduled Castes and Tribes and other backward classes.

The Commissioner for Scheduled Castes and Tribes is a statutory authority appointed under Article 338 of the Constitution. He is to investigate into the various safeguards provided for these Castes and Tribes, in the constitution and to report to the President on the working of the safeguards. In his report for 1970 71 presented to the Parliament in May 1973, he said that these communities have not been able to derive the benefits of the socio economic progress in the country to any appreciable extent. The gap between the scheduled and non-scheduled classes, which was fairly wide at the time of securing political freedom has continued to become wider."

Backward Classes

The welfare programmes in the Backward Classes of the Plan mainly fall into two categories namely, Central and Centrally Sponsored Programmes and the State Sector Programmes or Centrally Aided Programmes. In the category of "Central or Centrally Sponsored Programme" such schemes are included which need to be given high nation wide priority and intensive coverage over a length of time and for which the Government of India gives cent per cent grant-in-aid. The State Sector schemes are formulated according to the local needs. The State Sector schemes are also aided by the Central Government according to the principle decided by the NDC (National Development Council).

WILD LIFE

INDIAN forests abound, or rather abounded. in wild life. It is on record, that lions were hunted in the forests around Delhi, during the Moghul days The advent of the British marked the beginnings of travail for Indian wild life The British Sahibs were crazy about *shikar* (hunting) The Indian Princes showed themselves eager collaborators and an organised destruction of wild life went on in every part of India. The Indian poachers added their own quota of destruction to the depredations of the high and the mighty. Indian herdsmen penetrated more and more into the forests, to graze their cattle and frightened off many wild animals from their settled habitats Clearing of forest areas for cultivation had the same result. The cumulative effects have been a great reduction in the numbers of all specie of wild life, the extinction of many specie and the imminent destruction of many more.

Extinct Species

Within the last two centuries, many species of birds and animals have become extinct in India. The two-horned rhinoceros of Sunderbans has disappeared. The Indian cheeta or hunting leopard, once so common is gone, never to return.

Vanishing Species

Many species are on the verge of extinction The swamp deer and the nilgai have made their last stand on the periphery of the forests. Their further retreat is blocked by a hostile habitat The black buck, the chinkara, the Indian wolf and the striped hyena exist only in precarious survival pockets. The wild ass of the Rann of Kutch. the snow leopard and clouded leopard of north east India. the Kashmir stag, musk deer, wild buffalo and the pigmy hog are doomed unless prompt conservation measures are taken. Among birds, the great Indian bustard, the golden eagle, pink-headed duck, white-winged wood duck are becoming rarer and need proetction. The tiger, once the terror of all India, is now a fugitive in its own home.

Wild Life Variety Among the surviving species of wild life, are the magnificent Himalayan fauna the great Tibetan sheep, the blue sheep, the urial, the markhor, the ibex. the takin, the Tibetan gazelle, the Tibetan antelope from whose underfur is made the fine 'cashmere' wools,—the thick furred snow leopard, the rare clouded leopard, the red bear and the great Himalayan black bear.

The only Indian ape, the hoolock gibbon is found in Assam. Langurs and macaques of different varieties flourish throughout India—the capped langur of Assam, the black langur of Nilgiris, the lion tailed macaque and the bonnet monkey of the Deccan.

Gaur, the white-stockinged Indian ox, chinkara, the Indian Gazelle, the ungainly nilgai (blue bull), the four-horned antelope, the majestic sambar, the Kashmir Stag,† the swamp deer, spotted deer, barking deer, hog deer, musk deer of the Himalayas and the dinky little mouse deer are other species of fascinating fauna.

The sloth bear and the spotted leopard are common sights in forests The elephant, of course, is everywhere

Protection Measures. Wild Life (Protection) Act 1972 has legalised the protection measures that are being taken to preserve the vanishing species

The Asiatic lion is one of the rarest and most important wild animals of India. It is stockier in build and has bigger elbows, tufts and tail tassels, than the African specie The specie roamed all over India, as late as the days of the Moghuls. But now less than 200 animals are left in the Gir forests of Gujarat. The Gir forests are now protected. The protection afforded to the lion population in Gir is, as things go, quite unsatisfactory. The Gir forest is surrounded by cattle graziers, many of them with hundreds of cattle. These graziers poison lions, who foray into their pasture grounds, inside the forest. Several lions have been killed in this manner. Steps are now being taken to check, the inroads of graziers.

A second home for the Gir lions has been provided at *Chandraprabha Sanctuary* in U P A lion and two lionesses brought from Gir in 1957 have increased to 12 in April, 1972 at Chandraprabha

The one-horned rhinoceros, another vanishing specie, is now protected in the Assam Sanctuaries of *Manas* and *Kaziranga*, Kaziranga with its grassy plains dotted with waterlogged swamps suit the rhinoceros eminently. Other herbivora, like deer, wild buffalos and pigs, also thrive in these sanctuaries. But poachers do a lot of mischief in Manas and Kaziranga, in spite of protective measures. The mistaken belief that the horn of the rhinoceros is an excellent aphrodisiac drives the poachers into the recesses of the sanctuary.

In 1972,* a census of the rhinoceros showed a total of 658 as against 400 in 1966. This is more than half the world's total population of this specie.

Tiger

In Nov 1972 the Indian Wild Life Board, chose the tiger as the national animal of India. A national scheme called the "Project Tiger" was launched to protect the tiger population. The specie has been dangerously depleted. The first tiger census taken in April 1972, revealed that there were only 1,823 tigers in India as against an estimated 40,000 in the last century.

The tiger population was distributed as under·

Arunachal Pradesh	69	Assam	147
Nagaland	80	Meghalaya	32
Tripura	7	W. Bengal	73
Bihar	85	Orissa	142
U.P	262	Rajasthan	160
A.P.	35	Karnataka	102
T.Nadu	30	Kerala	60

The tiger project would ensure complete protection to the tiger species in seven specially selected reserves for scientific, economic, aesthetic, cultural and ecological purposes The reserves are at Manas (Assam), Palamau (Bihar), Simlipal (Orissa), the Corbett National Park (U P), Melghat (Maharashtra), Bandipur (Karnataka) and Sundarbans (W. Bengal).

There will be no commercial exploitation of the habitat in these reserves for six years and anti poaching operations will be strengthened.

---

† J. N. Robinson of the Cambridge Wild Life Study Centre, stated in Aug. 1974, that the Kashmir Stag population is steadily declining in the Dachigam Sanctuary, near Srinagar, in Kashmir. Their numbers have come down to a mere 150 in 1974 as against 2000 in 1947.

* The horn of a rhino sells at Rs. 35,000 a pound in the black market. The official rate is Rs. 1,200 only. No wonder the poachers never let go. The areas of greatest demand for rhino horns are China, South East Asia and Africa.

WILD LIFE SANCTUARIES

There are at present more than 130 national parks and sanctuaries. The better known among them are listed below:

A.P

1 *Pakhal Sanctuary*, near Warangal.

Assam

2 *Manas Sanctuary*, in north Kamarup is situated among the foothills of the Himalayas. It is famous for wild buffaloes and rhinoceros It offers fire fishing grounds for mahseer and bokar.

3 *Kaziranga Sanctuary*, near Manas, is the original home of the rhino. The number of rhinos has increased over the years to about 650, in 1972.

W. Bengal

4 *Jakdapara Sanctuary*, in Jalpaiguri district is well known for the fast disappearing Bengal tiger and rhinos. The number of tigers in the sanctuary had come down to 40 in 1972.

Bihar

5 *Hazaribagh Sanctuary*

6 *Palamau Sanctuary*, one of the sanctuaries chosen for the Project Tiger

Gujarat

7 *Gir Forest*, the home of the Asiatic lion

8 *Nal Sarovar*, Bird sanctuary, 65 km. from Ahmedabad

Karnataka

9 *Bandipur Sanctuary*, a Project Tiger sanctuary.

10 *Jagger Valley* in Chickmagalore Dist

11 *Rangnathittu* bird sanctuary), Seringapatam.

Kashmir

12 *Dachigam Sanctuary* for Kashmir Stag, about 35 kms from Srinagar

Kerala

13 *Periyar Sanctuary*, for gaur, the so-called Indian bison and elephants

MP

14 *Shivpuri National Park*, once the game preserve of the old rulers of Gwalior, is 61 sq. km in area. It is famous for chinkara, leopards, wild pigs, chitals etc.

15 *Kanha National Park*, in Mandia District is 97 sq miles in area. One of the sanctuaries chosen for Project Tiger, it is the home of barasinga or swamp deer, gaur, sambar, barking deer, sloth bear, hyena etc.

16 *Bandogarh Sanctuary*.

Maharashtra

17 *Borivilli National Park*.

18 *Melghat Sanctuary* one of the sanctuaries for Project Tiger

19 *Taroba National Park*.

Orissa

20 *Simlipal National Park*, one of the Project sanctuaries.

Rajasthan

21 *Ghana Bird Sanctuary*, Bharatpur, is the most famous bird sanctuary in India. It is a marshy depression of about 7,000 acres near Bharatpur, and the home of many winter immigrant birds as well as indigenous birds. The forests around the swamp contain spotted deer, blue bulls (nilgai), black buck, wild bears and sambars.

22 *Ranthambor Sanctuary*, one of the sanctuaries of Project Tiger.

23 *Sariska Sanctuary*.

T. Nadu

24 *Mudumalai Sanctuary*.

UP

25 *Corbett National Park*, the chief home of tigers and one of the Project Tiger sanctuaries, is 200 sq. miles in area. It is named after a famous English hunter and naturalist, Jim Corbett.

26 *Rajaji Game Sanctuary*, Sabaranpur district.

27 *Chandraprabha* 31 sq miles) now the second home of the Gir lion.

Wild Life

Many species of wild life, all over the world are now in danger of extinction The International Union for the Conservation of Nature (I. U. C. N.) have in their publication *Red Data Book* listed the specie endangered. The list mentions, 17 kinds of deer, 28 kinds of antelopes, gazelles, goats, sheep, three kinds of rhinoceros, three kinds of wild ass, the only true wild horse known, the tiger, the Asiatic lion, cheeta, spanish lynx, the mountain gorilla and the urang-utan among land animals and the blue whale, the humpback and the bowhead whales among marine animals

Morges, Switzerland, Reuter.
March 22, 1973.

TOURISM

TOURISM in India is handled by the Department of Tourism, in the Ministry of Tourism and Civil Aviation. It functions under a Directorate of its own The function of this Directorate is both promotional and organisational. It is responsible, on the one hand for attracting tourists by disseminating information within India and abroad about the places of tourist interest and, on the other, for improving conditions within the country, such as provision of better communication and transport facilities, hotel accommodation to ensure convenience and comfort of the tourists. The Directorate works in close co-operation with the India Tourism Development Corporation which as a public sector undertaking, is in charge of the commercial enterprises connected with tourism such as construction and management of hotels, maintenance of taxi and long distance coach services construction and management of motels, and restaurants

Tourism is big business Tourists, the world over, have spent, according to Mrs. Tamby Vaidya, Commissioner for Tourism, Maharashtra* a sum of Rs. 11500 crores in 1969 which rose to Rs. 18750 crores in 1972, a rise of 63 per cent According to the *Economic Digest*, published by Spciete Generale, Paris, the total tourist receipts, around the world, amounted to $ 28,000 million in 1973. India could well have taken a goodly slice of it, if only our tourist authorities knew how.

But with a Ministerial wing set apart for tourism and a Development Corporation dedicated to it, we have yet to learn, how to make the best out of our tourists Spain with a population of only 31 million earns Rs 750 crores worth of foreign exchange one billion dollars) from tourists every year. This is more or less equal to the consortium aid which India receives annually as loan from outside. Greece, a tiny bit of land compared to India, earns as much as 100 million dolloars from tourism. In contrast, India, with its hoary antiquity, its innumerable myths and legends, its scenic contrasts, its quaint customs, colourful festivals, its Taj, Ajanta and Kajuraho could only earn $ 34 million in 1966.

As Mrs. Tambay-Vaidya says "Despite the immense potential, India still shares only a negligible fraction of the world turn over, from tourism, 0 25, to be precise."

Tourist receipts are more than a welcome addition to our income. They are a desperate necessity. We have been labouring under a chronic trade deficit, for years together Our balance of payments, has also been running against us We have been trying hard to convert our trade deficit into a surplus, without avail, so far. It is here, that tourist income, comes in handy. It will swell our "unseen balance of payments and thus neutralise our visible" adverse balance of trade.

"A small country like Spain, which is about 1/6th of India in size, earned foreign exchange worth $2610 million or Rs. 1950 crores. (40 per cent of its total foreign exchange earnings last year through tourism† Greece, Ireland, Portugal, Yugoslavia and Turkey earned as much as 21.3, 17 5, 16.9, 14.1 and 6 4 per cent respectively of their total foreign exchange earning, from tourism. "In comparison" says Mrs Tambay-Vaidya 'our achievement, in this regard is very insignificant.'

And yet, we take pride in the fact, that the number of tourists visiting India, has shown a rise of 81 per cent, between 1968 and 1972 and that our exchange earnings have shown a corresponding increase. We say, that this is a growth rate, much larger than the total world growth rate and put ourselves, on our backs, on our miserable performance

If we must make anything out of our tourist potential, we must first learn, that the customer is always right, even when he is demonstrably wrong. Tourists are our customers. They do not come here to drink at the fount of India's infinite wisdom It is only the hippies' who make this claim. And hippies, as everybody knows, are more of an economic liability, than an asset for the country The tourists who come here, come to relax and enjoy themselves. They do not like being lectured to, any more than we do. But our leaders insist on stuffing them with advice, and telling them, what is good for them. So, instead of giving them, what they want, we give them, what we think, is good for them. And they go elsewhere where they will get what they want and no lectures

---

* See Commerce Supplement. Jan. 26, 1974.

† Mrs. Tambay-Vaidya.

"Apart from this irritating attitude of the authorities, there are specific factors, that keep the tourists away from India. Excessive bureaucratic formalities at landing centres, indifferent travel facilities inside the country, shortage of accommodation in medium-sized hotels, the exorbitant charges of porters, taximen and traders, the never ending nuisance of beggars, and the irksome provisions regarding drink are some of the little things that counts for much in tourist traffic. But our government seems to think that these trifles do not matter at all.

By passing India

What is intriguing about tourist traffic in India, is that for every tourist who comes to India, two overfly the country A recent survey conducted at the Santa Cruz international air port at Bombay, showed that 72.5 per cent of the persons interviewed did not have sufficient time at their disposal to visit India on their current trips abroad, 9.2 per cent had visited India previously and 4.3 per cent stated that they were not interested. The government appears to be completely satisfied with the results of this survey. After all, only 4.3 per cent tourists, say that they are not interested in visiting India The rest were interested, some of them had already visited India and the others, would have visited, if only they had the time. The naivette of the government is truly astonishing.

It is evident that the 72.5 per cent, who pleaded lack of time were, only indulging in the diplomatic language of courtesy, in contrast to the 4 3 per cent, who bluntly said they were not interested. These (the 72.5 per cent) had time enough for other places but little time for India. Who would take such an excuse seriously?

Foreign Exchange. The tourist trade is essentially a foreign exchange earner. But foreign exchange receipts haven't kept pace with the increase in tourist numbers.

Table 140

Foreign Exchange earnings from tourism

Year	*Amount (Rs crores)*	*Percentage increase*
1967	25.18	11.4
1968	26.42	4.9
1969	33.11	25.3
1970	38.03	14 8
1971	40.38	6 2

Source* *Econ. Times*, March 25, 1973.

The reason for this disparity is not clear The Government thinks that a good percentage of foreign exchange brought into the country, is illegally diverted into unofficial channels. So the Government has directed all hotels in India as from 1-11-1973 to accept payment of bills of foreign nationals and non-resident Indians in foreign exchange only This is expected to reduce, if not eliminate, the leakage of foreign exchange

Tourist Centres in India †

Mount Abu (Rajasthan), Agra (UP), Ahmedabad (Gujarat), Ajanta and Ellora (Maharashtra), Ajmer (Rajasthan), Allahabad (UP), Almora (UP), Alwar (Rajasthan), Amritsar (Punjab), Aurangabad (Maharashtra), Badami (Karnataka), Bangalore (Karnataka), Baroda (Gujarat), Bharatpur (Rajasthan), Bhubaneswar (Orissa), Bijapur (Karnataka), Bikaner (Rajasthan), Bombay (Maharashtra), Brindavan (UP), Buddha Gaya (Bihar), Calcutta W. Bengal), Cape Comorin (T. Nadu), Chandigarh (Haryana), Conjeevaram (T. Nadu), Chittor (Rajasthan), Cochin (Kerala), Coonoor (T. Nadu), Darjeeling (W Bengal), Delhi -(Old and New)— Territory of Delhi, Ernakulam (Kerala), Fatehpur (UP), Golconda (AP), Gwalior (MP). Halebid Karnataka), Hampi (Karnataka), Hardwar (UP), Hyderabad-Secunderabad (AP), Jaipur (Rajasthan), Jamshedpur (Bihar), Jodhpur (Rajasthan), Jog Falls or Gersoppa Falls (Karnataka), Junagadh (Guiarat, Kashmir (J & K. State), Khajuraho (MP), Kodaikanal (T Nadu), Kolar Gold Fields (Karnataka), Konarak (Orissa). Kottayam (Kerala), Kovalam (Kerala), Kulu Valley (Himachal Pradesh, Lucknow (UP), Madras (T. Nadu), Madurai T Nadu), Mahableswar (Maharashtra, Matheran (Maharashtra), Mathura (UP), Mussoorie UP), Mysore City (Karnataka) Nalanda (Bihar), Nandi durg (Karnataka, Nasik (Maharashtra),

---

† See States of the Union, for details.

Ootacamund or Ooty (T. Nadu), Pachmarhi (MP), Patna (Bihar), Poona (Maharashtra), Porbandar (Gujarat), Prabhas Patan (Gujarat), Puri-Jagannath Puri (Orissa). Rameswaram (T. Nadu,) Ranchi (Bihar), Sanchi (MP), Santiniketan (W. Bengal), Sasaram (Bihar), Sevagram (Maharashtra) Shrayanabelgola(Karnataka) Srirangapatana(Karnataka), Sivasamudram (Karnataka), Shillong (Meghalaya), Simla (Himachal Pradesh), Srirangam (T. Nadu), Tanjore (T. Nadu), Tiruchirapally (T. Nadu), Trivandrum (Kerala), Thekkady (Kerala), Udaipur (Rajasthan) and Varanasi or Kasi (UP).

---

* *Source:* Report for 1972-73, Ministry of Tourism.

Table 141

Tourist Arrivals in India

(Monthly averages)

(In number)

	By mode of transport				*By country of origin*			
Year	*Air*	*Sea*	*Land*	*Total*	*Canada*	*USA*	*France*	*G*
1951	..	.	...	1,402	11	292	42	17
1956	4,029	1,159	303	5,491	95	1,050	139	178
1961	7,369	3 640	641	11,650	160	2,612	253	403
1966	11,065	2,108	127	13,300	241	3,455	519	640
1969	17,003	2,004	1,387	20,394	404	4,403	1,008	1,185
1970	19,576	2,002	1,823	23,401	586	4,899	1,403	1,357
1971	20,526	2,699	1,857	25,083	587	4,582	1,398	1,489
1972	25,176	2,589	814	28,579	780	4,907	1,530	822

(*Contd.*)

By country of origin

Italy	*Switzerland*	*UK*	*Afghanistan*	*Sri Lanka*	*Japan*	*Malaysia*	*Singapore*	*Australia*	*Others*
15	12	499	—	106	42	-	—	20	346
59	59	1,110	129	1,012	117	3	—	56	1,484
137	137	1,858	170	1,237	328	621(*a*)		192	3,458
170	245	1,810	139	1,206	411	787(*a*)	--	397	3,280
387	368	3,170	322	1,658	696	735	316	885	4,857
496	435	3,601	404	1,500	786	902	410	992	5,680
498	449	3,334	515	1,381	968	1,479	635	911	6,857
569	533	4,230	519	1,709	1,363	1,603	770	775	7,660

(*a*) Includes Singapore.

Source: Ministry of Tourism & Civil Aviation

STATES OF THE UNION

There are at present 21 States constituting the Union of India. (See page 292) The administrative pattern of all the States is the same, with a Governor at the head assisted by a Council of Ministers. under a Chief Minister responsible to the State legislature. State legislatures are mostly unicameral, consisting of only one Chamber, the Legislative Assembly. But fiive States have bicameral legislatures, consisting of the Legislative Assembly and the Legislative Council. They are—Bihar, Jammu and Kashmir, Karnataka, Maharashtra and Uttar Pradesh

ANDHRA PRADESH

Area:	276,814 sq. km.
Population:	43,502,708
Principal Language:	Telugu
Capital:	Hyderabad
Governor:	Khandubhai K Desai
Chief Minister:	J Vengal Rao
Legislative Council Chairman:	Thota Ramaswami
Legislative Assembly Speaker:	P Ranga Reddi
Chief Justice:	Gopal Rao Ekbote

Physiography

Andhra Pradesh is the fifth largest State in India, both in repect of area and population. Bounded by M P and Orissa in the north, the Bay of Bengal in the east, T. Nadu and Karnataka in the south and Karnataka and Maharashtra in the west, A P provides the major link between the north and the south of India. The northern areas of A P are mountainous with an annual rainfall of 45 to 50 inches. The highest peak Mahendragiri rises 4,920 ft. above the sea level. As we go further south, the rainfall comes down to 20 inches annually. The climate is generally hot and humid. A P is principally fed by the south west monsoon; the north east monsoon contributing about one-third of the rainfall.

The State may be divided into three distinct geographical units. 1. *Coastal Plains.* Along the coast there is a low-lying area which is wider in the middle and tapers off into a narrow strip to the north. The region consists of the deltas built by the Krishna and Godavari rivers. 2. *Eastern Ghats.* The Eastern Ghats are a chain of broken hills. In the north, the ghats spread out and reach elevations of 900 m. to 1500 m. The hills are wooded but the vegetation is poor due to porous soils and low precipitation. 3. *The Pene-plain.* Between the eastern ghats and the coastal plains lies this area which has been reduced almost to a plain by erosion The general feature of this region is that of graded valleys and isolated hillocks breaking the monotony of the plains.

Rivers. The Krishna and Godavari are the major river systems that drain the State. The Godavari is the largest and the broadest river of South India. Tunga bhadra is an important tributary of the Krishna. Other important rivers are Pennar Vamsadhara and Nagavali. All these rivers are rain-fed, and are of great economic significance to the State because of their rich hydro-power and irrigation potential.

History

The history of Andhra Pradesh is the history of the Andhras The Andhras, originally an Aryan race migrated to the south of the Vindhyas where they mixed with the non Aryan stocks. Andhra Pradesh first enters history as part of the great Mauryan empire. On the death of Asoka, the Mauryan emperor, an Andhra chieftain, Satavahana, established a small independent kingdom, round about modern Hyderabad. The Satavahana dynasty produced great rulers and conquerors, who converted the little principality into a mighty empire, that covered the whole of Deccan, Maharashtra, Malwa and Kalinga. By about the 2nd century AD, the Satavahana power declined.

The Pallavas rose on the ruins of the Satavahanas, but they remained south of the Krishna. Between Krishna and Godavari a new kingdom Vengi came into existence, while north of the Godavari, Kalinga again became independent.

In the seventh century, Andhra Pradesh passed under the Eastern Chalukyas. It was during the Eastern Chalukyan era, that Telugu literature opened out on its own with the composition of the Telugu

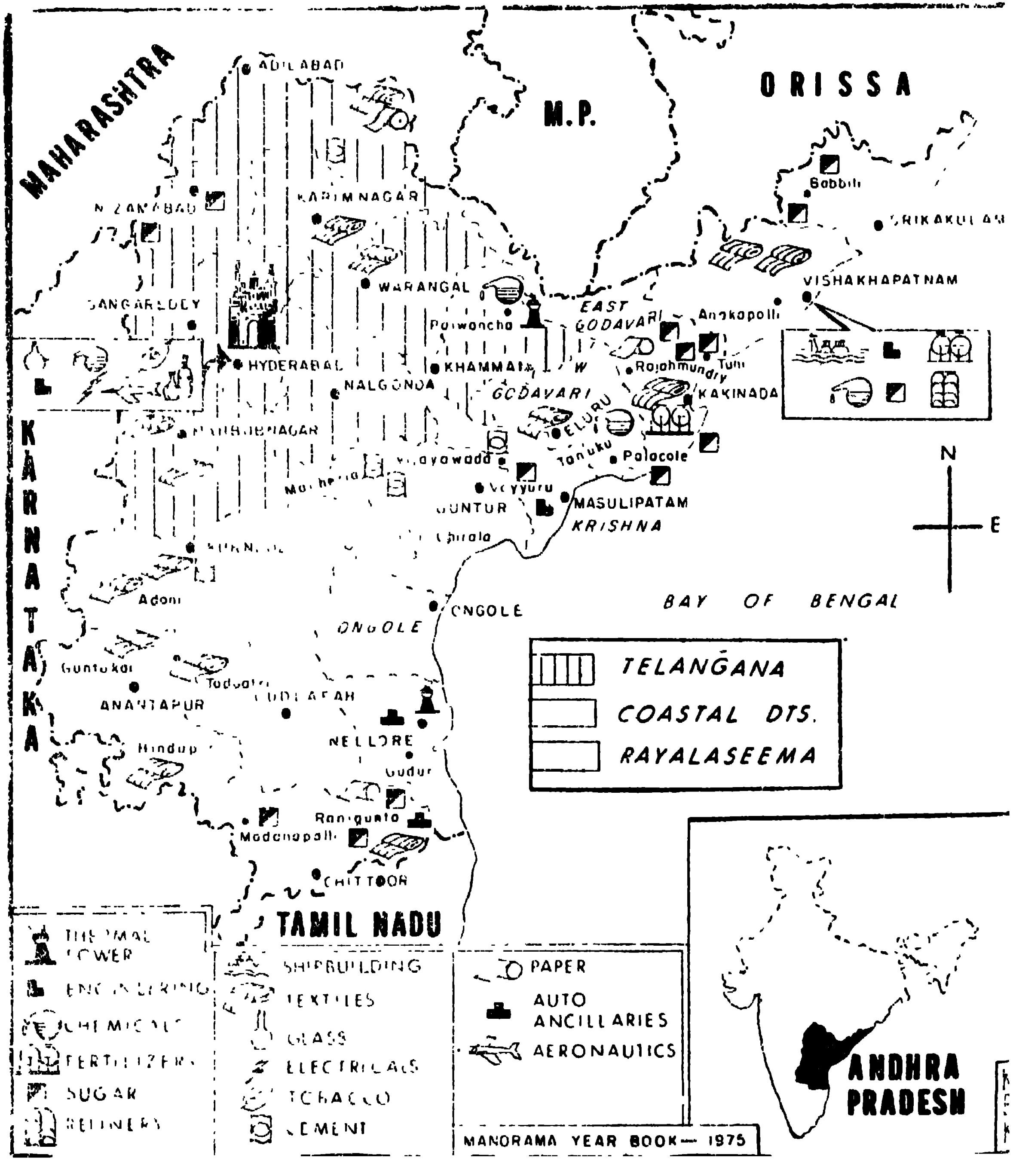
Mahabharata. The Telugu language, also acquired a script of its own, during this period.

In the 13th century, the Kakatyas, with their capital at Warangal, dominated Andhra desa. In 1323, the Tughlak Sultan of Delhi, captured the Kakatiya ruler and ended the dynasty. The Tughlaks never cared to annex the Kakatiyan dominions and four local kingdoms arose out of the Kakatiyan empire.

One of these four kingdoms was Vijayanagar, founded in 1336 AD. The kingdom of Vijayanagar, soon grew into a mighty power, bringing within its fold, the whole of South India and much of Andhra desa.

While the southern part of Andhra desa remained under Vijayanagar, the northern parts were under the rule of Muslim sultans of the Deccan. One of these sultans, was Qutub Shahi who ruled over Telengana. Telengana flourished under the Qutub Shahis. They laid the foundations of the city of Hyderabad.

The Qutub Shahis, were humbled by the Mughal Emperor Aurangazeb, who appointed Asaf Jah, as governor of the



Deccan. The Asaf Jahis soon became independent rulers under the title of Nizam. The Nizams became involved in the Anglo-French wars in the Deccan and finally entered into a subsidiary alliance with the British in 1800.

The British had in the meantime acquired seven coastal districts and four districts of the interior from the Nizam. They were incorporated into the Madras Presidency.

Formation of the State

When India became independent the Telugu speaking population was distributed in about 21 districts, 9 of them in the Nizam's Dominions and 12 in the Madras Presidency In response to the desire of the Telugu speaking people, to have a State of their own, the first Andhra State was formed on Sept 14, 1953 merging 11 Telugu speaking districts of the Madras State with Kurnool as capital

On Nov 1, 1956, in accordance with the recommendations of the States Reorganisation Commission, the Andhra State was enlarged, by the addition of nine districts formerly in the Nizam's Dominions. Hyderabad, the former capital of the Nizam, was made the capital of the enlarged Andhra State. On April 1, 1960, 326 sq. miles in the Chingleput and Salem districts in T. Nadu State. were given to AP in exchange for 405 sq. miles from Chittoor district transferred to T. Nadu.

AP thus consisted of three distinct regions (1) coastal region, made up of eight districts, generally called *Andhra*. (2) the interior region, consisting of four districts collectively known as *Rayalaseema* and (3) *Telengana* region, consisting of the capital of Hyderabad and nine adjoining districts.

THE MULKI PROBLEM

Andhra Pradesh inherited the *Mulki* problem from the old princely State of Hyderabad. The *mulki* question has a long history. It began with a *firman* of the Nizam in 1918. The firman was issued as a service regulation to pacify the local population, who objected to foreigners that is people from other states—being inducted into the service of the Nizam's Government. The service regulation says, "No person will be appointed to any superior or inferior service without the specific permission of His Exalted Highness, if he is not a mulki, in terms of the rules laid down". Mulkis were defined as persons who by birth, descent, marriage or domicile, were citizens of the Hyderabad State. The *mulki* rules, in other words, made public posts a preserve of the local population.

When the Hyderabad State was absorbed into the Indian Union, and most of it became part of Andhra Pradesh, the *mulki* rules continued to operate in the new State. The Indian Constitution, which became effective, on January 26, 1956, drastically changed the operation of the *mulki* rules. Under art. 35 (b) the *mulki* rules were allowed to continue on the restricted base of residential qualification, until such time, as the Parliament, altered, amended or repealed them.

In the meantime a gentleman's agreement was concluded in 1956, between the Telengana and Andhra leaders, under which subordinate posts, were reserved for the *mulkies*, for a period of five years This meant that higher cadres were open to all and that qualifications like birth or descent or marriage were no longer relevant. Only the residential qualification remained and this for inferior posts and for a period of five years.

This agreement was translated into law by the *Public Employment (Requirement as to Residence) Act, 1957*. Under this Act, *mulki* rules and other similar rules, obtaining in the States and Territories of India were abolished except in Manipur, Tripura, Himachal Pradesh and the Telengana region in Andhra Pradesh.

The *mulki* question, had from the outset, become entangled, with the question of a separate identity for Telengana. within the Andhra State. The Telengana region was economically and culturally backward compared to coastal areas of Andhra Pradesh The Telengana people feared that in the new State, they would be overwhelmed, politically and economically by the people of Coastal Andhra. Their fears in this regard, were voiced by the States' Reorganisation Commission as follows: "It will be in the interest of Andhra, as well as Telengana, if, for the present the Telengana area is constituted into a separate State, to be known as Hyderabad State" with the provision for its unification with Andhra, later on The Commission pointed out that "if, however, our hopes for the development of the environment and conditions congenial to the unification of the areas, do not materialise and if, public opinion in Telengana, crystallises itself against the unification of the two states, Telengana, will have to continue as a separate State".

But the Union Government under Nehru, was opposed to the partition of the State, in any manner. Nevertheless the sentiments of the Telengana people were recognised by the amendment of Art· 371 of Constitution (1956), which provided for a Regional Committee for Telengana, within the framework of the Andhra State The other concessions given to the Telengana region included (1) the continuance of the *mulki* rules (2) the stipulation that the Chief Minister or Deputy Chief Minister of the State, should be from the Telengana region (3) a 40 per cent representation for Telengana in the State Cabinet and (4) the provision, that all surplus revenues from the Telengana region, would be spent exclusively for Telengana.

The arrangement worked for about 13 years. When signs of unrest became evident. These came in the wake of an economic stagnation in the State, followed by mounting unemployment Though unemployment was a nation-wide phenomenon, it assumed special importance in Andhra, in the context of the *mulki* rules The number of job seekers in Andhra Pradesh increased from 1.6 lakh in 1967 to 2.2 lakh in 1969 and 3·39 lakh in 1971.§ The educated unemployed, formed a sizable portion of the total number of unemployed, from matriculates upward to post graduates, and professional graduates in engineering, medicine, agriculture and technology. The main source of employment for these people was the State Government. Now, the simple fact was that the State Government could not absorb all or even a majority of the educated unemployed. But the Andhras blamed their unemployment on the *mulki* rules, while the Telenganites complained that the Andhras were pushing them out of higher cadres, by their superior qualifications.

In 1969 the Supreme Court struck down the Public Employment Act, on the ground, that it discriminated against some people on the basis of a residential qualification in a *particular area of the State*. The Telenganites felt, that their only protection against the Andhras was taken away. And riots broke out.

The *Mulki Rules Act* of 1972 was passed to rectify the legal defects of the Public Employment Act and to restore the *Mulki* rules, although in an attenuated form. The Act fixed a deadline between 1977 and 1980, when the *mulki* rules would cease altogether. The Supreme Court upheld the *Mulki Rules Act*. This time, the Andhras started the riots.

Whatever may have been the reasons and whether they were justifiable or not, the riots spread like wild fire, accompanied by arson and destruction of public property, disruption of communications and what not. The popular ministry in the State, unable to stem the tide of rising riots resigned on January 17, 1973 The President took over the Government on January 18, 1973 With the assumption of government by the President, the riots began to subside

What emerged from the riots, was a demand for the partition of the State into two. The Central Government refused to consider the question of bifurcation. A six point formula was put forward by the Prime Minister, as a compromise. The formula was generally accepted and peace was restored in the State The Presidents' rule was terminated on 10th Dec 1973, when a popular ministry under J Vengal Rao took over.

The six point formula has been incorporated into the Constitution (Thirty Second Amendment) Bill, 1973, which has been passed by both houses of Parliament The Bill has been sent to the state legislatures under Art, 368 (2) of the constitution for ratification. As the six-point formula provides for the continuation of the Mulki Rules, the *Mulki Rules (Repeal) Bill*—has been enacted by the Parliament. The Mulki Rules, which have wrought so much havoc and destruction in the state, have thus been buried for ever.

Administration

The legislature consists of two houses the Legislative Assembly and the Legislative Council. The Assembly consists of 287 elected members and one nominated member. The Council consists of 90 members, 12 of whom are nominated and the rest elected

---

§ *Source*· Director General of Employment and Training.

The State is divided into 21 districts.

Table 142

	District	HQ	Area* in '000 (sq. km)	Total Population (Persons)
	Andhra Region			
1	Anantapur @	Anantapur	19.1	2115321
2	Chittoor @	Chittoor	15 8	2285536
3	Cuddapah @	Cuddapah	15.4	1577267
4	East Godavari	Kakinada	10.9	3087262
5	Guntur	Guntur	11,4	2844488
6	Krishna	Masulipatanam	8.7	2493574
7	Kurnool @	Kurnool	18.8	1982090
8	Nellore	Nellore	13.2	1609617
9	Ongole	Ongole	17.6	1919995
10	Srikakulam	Srikakulam	9 7	2589991
11	Visakhapatnam	Visakhapatnam	13.7	2865360
12	West Godavari	Eluru	7.8	2374306
		Total	162 1	27684813
	Telengana Region			
13	Adilabad	Adilabad	16.3	1288348
14	Hyderabad	Hyderabad	7.7	2791762
15	Karimnagar	Karimnagar	11.8	1963928
16	Khammam	Khammam	15.9	1369892
17	Mahbub nagar	Mahbub nagar	18 4	1932082
18	Medak	Sangareddi	9.7	1467944
19	Nalgonda	Nalgonda	14.2	1819738
20	Nizamabad	Nizamabad	8.0	1313268
21	Warangal	Warangal	12-9	1870933
		Total	114 9	15817895
	Total Andhra Pradesh		277 0	43502708

* Provisional

@ Rayalseema Region.

Source: Census of Andhra Pradesh 1971, Statement 1

Economic Structure

The economic structure of AP broadly resembles that of India as a whole Agriculture is the mainstay of the economy. According to the 1971 Census, nearly 71 per cent of the working population was engaged in agriculture and allied activities in the State as in the country. However, in AP 37.4 per cent of the total working population derived their livelihood as agricultural workers as against 25 76 per cent for the country.

Table 143

Some Basic Facts

Percentage to working force (1971)		
(a) Cultivators	32.2	43.3
(b) Agricultural labourers	37.9	26.3
(c) Non-agricultural workers	29.9	30.4
Percentage of villages electrified as on March 31, 1974	37.5	27.3
Per capita value added by manufacture in Rs. (1969)	23	48
Bank offices per lakh of population (December-end 1973)	2.7	3.0
Per capita income in Rs. (1970–71)	545	633

Source: Commerce

Agriculture

Andhra Pradesh is a surplus state in food grain production and leads all other states in the production of tobacco. It accounts for more than 95 per cent of Virginia tobacco produced in India. In chillies and oilseeds, AP produces 31 and 20 per cent respectively of all India production. In castor seeds, the state accounts for about 46 per cent of the total Indian crop.

Table 144

Area and Production of Principal crops (1972–73)

Crops	Area (Hect.)	Production (000 tonnes)	Yield per hectare
Rice (Autumn)	960500	1427600	1486 kgs
Rice (winter)	996400	1322400	1327 kgs
Rice (summer)	621000	893700	1439 kgs
	(000 (Hectare)	000 tonnes)	
Jowar Kharif	1251.9	419.1	335 kgs
Rabi	1274 9	638 0	500 kgs
Bajra	433.3	133 5	308 kgs
Maize	247.3	229 3	927 kgs
Ragi	199.6	177 3	888 kgs
Small millets	560.5	125 6	224 kgs
Tur	170 1	36.4	214 kgs
Other pulses	950.3	180.3	190 kgs
Groundnut	1299.2	896.8	690 kgs
Castorseed	272 7	45.5	167 kgs
Sesamum	201.2	22.5	112 kgs
Cotton	302.8	114.5	68 kgs
Mesta	91.3	409 8	808 kgs
Sugarcane((gur)	120.7	1023.7	8523 kgs
Cane	120.7	9209.2	
Drychillies	139.0	69.7	501 kgs
Coriander	89.9	17 8	198 kgs
Tobacco	212.3	155.9	734 kgs

Source: Bureau of Economics & Statistics, Ministry of Agriculture.

Irrigation. AP is a land of rivers. The major and medium rivers of the State bring in about 150 million cubic feet of water. More than 27 per cent of the net sown area in the State is irrigated, against the average of 20 per cent for the country. Of the total irrigated area, the Andhra region accounts for 72 per cent and the Telengana region for 28 per cent Tanks and canals are the main sources of irrigation. Rice claims 80 per cent of the total irrigated area in the State.

Table 145

Net Area Irrigated by Sources of Irrigation

(Lakh Hectares)

Sources	*1970 71*	*% to Total*	*1971 72*	*% to Total*
Canals †	15 8	47.8	15.2	50.7
Tanks	11.1	33.5	8.1	27.1
Wells£	5.1	15.4	5 7	18.9
Other sources	1 1	3.3	1 0	3.3
Total	33 1	100 0	30.0	100.0

† Includes Government and Private Canals.
£ Includes Tube wells.
Source: Bureau of Economics and Statistics, Andhra Pradesh. 1972-73.

Table 146

Irrigation Projects

Name and Description	*Benefit area (in hectares)*
K. C. Canal and Sunkesula Anicut Improvements of Sunkesula Anicut across Tungabhadra river, a tributary of river Krishna in Kurnool and Cuddapah districts.	122,219 4
Kadam. Across Kadam, river a tibutary of the Godavari in Adilabad district.	34,400
Nagarjuna Sagar Across the Krishna river in Nalgonda district about 144 km from Hyderabad	830,000
Pochampad. About 5 km. upstream of S[illegible] bridge across the river Godavari in Nirmal taluk of Adilabad district.	230,679
Tungabhadra Low Level Canal Right flank of the Tungabhadra Dam, across the river Tungabhadra	60,247
Tungabhadra High Level Canal The high level sluices on the right side of the Tungabhadra Dam.	103,822

Animal Husbandry. In respect of livestock population, AP stands fourth after UP, MP, and Rajasthan in the country and ranks first in poultry and sheep population. The sheep population constitutes about one-fourth of the total livestock population. Animal husbandry is the mainstay of the State's predominantly agricultural economy. The contribution by the livestock sector comes to about one tenth of the State income.

The State has certain world-famous breeds of cattle of which the Ongole breed is the most reputed. With the early maturity of the exotic breeds such as Jersey, Brown Swiss, Holestein, Fresian and Guernsey, a considerable increase in milk production has been achieved. The grassland and fodder resources of the State are satisfactory.

Table 147

Livestock and Poultry Population 1972†

Cattle (total)	...	12,525,047
Buffaloes (total)		7,027,928
Sheep	...	8,250,742
Goats		4,307,847
Horses and Ponies	..	24,223
Camels	..	31
Pigs	...	647,448
Other livestock	...	65,874
Livestock total	...	32,876,420
Fowls, Ducks etc including Turkeys	...	18,781,722

Source: *Bureau of Economics and Statistics, Andhra Pradesh 1972-73.*

Forests occupy 61.17 lakh hectares or 22.3 per cent of the geographical area in the State. The main forest belts lie in north, north east and south. Dense forests are found in the districts of Srikakulam Visakhapatnam, E. Godavari, W. Godavari and Kurnool. The important forest products are timber, firewood, charcoal, bamboos, beedi leaves and sandalwood

Table 148

Value of Forest Produce

(Rs. Lakhs)

Species	*Value* 1970-71	1971-72	1972-73
Timber	368·30	397·20	364.60
Fire wood and charcoal	62.04[*]	48.30	40.86
Bamboos	51·25	47·08	39.91
Beedi Leaves	89.66	382·44[†]	354.50
Other Minor Forest Produce	38.05[††]	31 35	22.39
Total	6 9.30	906.37	822.26

[*] Includes Rs. 6,98 lakhs being the value of sandel wood.

[†] The increase in the value of beedi leaves is due to the nationalisation of the collection and selling of the beedi leaf departmentally-

[††] Includes grazing and fodder.

Source: Chief Conservator of Forests. Andhra Pradesh.

Fisheries The State has a long coast-line of 1,000 km with an average width of 32 km of continental shelf extending the fishing grounds to an area of about 32,000 sq km. and large number of rivers covering a total length of about 1,500 km. Besides these tanks, ponds, reservoirs and lakes cover an area of eight lakh hectares. The commercially important varieties of marine fish are sardine, whitebait, jew-fish, seer, mullet and pomfret.

Table 149

Estimates of Production of Marine and Inland fish, 1972

('000 Tonnes)

	Marine	*Inland*	*Total*
Andhra Region	113.68	73.54	187.22
Telengana Region	— —	20.54	20.54
Total Andhra Pradesh	113.68	94.08	207.76

Source: Director of Fisheries, Andhra Pradesh.

Minerals. AP is one of the important mineral producing States in India. In 1966 the State ranked fourth among all the States in terms of the value of mineral production and accounted for 6 per cent of the mineral production in India.

The important minerals found in the State are coal, manganese ore, asbestos, barytes, mica, iron-ore, clay and lime-stone. Besides these minerals, deposits of graphite, steatite, ilmenite, gypsum, quartz and silica are also found. Recently, the Geological Survey of India has located promising copper and lead deposits at Agnigundala in the Guntur district and gold in Anantapur district. The reserves have been provisionally placed at 6.57 million tonnes of copper-ore and 10 62 million tonnes of lead-ores of various grades. Deposits of important minerals in the State are mostly found in the Cuddapah, Kurnool, Anantapur, Khammam, Krishna. E Godavari and W. Godavari districts.

The State ranks fourth among India's coal producing States, the first three being Bihar, W. Bengal and MP. Coal is the most important mineral of the State accounting for nearly four-fifths of the total value of mineral production in the State.

Next to Bihar and Rajasthan, AP is the country's third most important producer of mica and silica sands. In terms of value of production, mica stands next to coal in the State's economy. The entire production comes from the Nellore district alone.

The State accounts for more than 75 per cent of the production of chrysolite asbestos which is used in the manufacture of abestos cement products, shingles, boards, plastic paints etc.

Similarly AP has a virtual monopoly of barytes, which is mainly used in paints, textiles, paper, rubber, grama-phone records, printing inks. etc. The State accounts for three-fourths of the total production of barytes in the country. The State also ranks fifth in salt production and accounts for about 6 per cent of the country's salt output

Table 150

Quantity and Value of Minerals Produced

Sl. No.	*Minerals*	*1970*		*1971*		*1972*	
		Quantity ('000) Tonnes	*Value ('000) Rs.*	*Quantity ('000) Tonnes*	*Value ('000) Rs.*	*Quantity ('000) Tonnes*	*Value ('000) Rs.*
1.	Apatite	4.8 (30)	505	4.7 (42)	495	8.5 (31)	372
2.	Asbestos	0.3 (3)	600	0.6 (4)	1,448	0.8 (6)	1,957
3.	Barytes	67.8 (91)	1,099	51.5 (88)	1,073	38.4 (83)	1,088
4.	(i) Bhallaclay	8.4 (100)	111	12.6 (100)	266	16.5 (96)	284
	(ii) Chinaclay (Saleable crude)	29.8 (15)	257	19.0 (10)	199	9.5 (44)	113
	(iii) Clay (others)			17.6 (9)	170	22.4 (17)	217
5.	Coal	3,805.0 (5)	1,49,763	4,450 (6)	1,76,320	5,030 (7)	1,96,730
6.	Iron Ore (lumps)	111.1 (0.4)	728	113.1 (0.4)	657	158.3 (7)	1,010
7.	Limestone	2,386.0	12,991	2,615.5	14,233	2,441.5	10,403
8	Mica (including Crude Mine waste Scrap etc)	(10) 6.5 (30)	3,626	(10) 6.7 (35)	4,235*	(10) 7.1 (40)	4,833*
9.	Manganese ore	151.5 (9)	3,838	179.2 (10)	4,257	131.0 (8)	3,599

Note. The figures in brackets are the percentages of the State Totals to the All India Totals.

Source: Monthly Bulletin of Mineral Statistics and information, November and December 1972 issued by Government of India.

* Excludes value of mine-waste, Scrap etc.

Power. Thanks to the large coal reserves and water resources, the power potential of the State is very rich. However, for various reasons, it has been possible so far to utilise only 8 per cent of the available power potential.

Table 151

Installed Capacity, Generation and Consumption of Electricity

Particulars	*1970-71*	*1971-*	*1972 73†*
Installed Capacity (Megawatts)	605.4	668.1	668.1
Power Generated (M. Kwh)	2,875.3	3,017.8	3,028.0
Power Purchased from other states (M. Kwh)	149.9	276.6	86.1
Power consumed in station auxillaries (M. Kwh)	115.9	140.8	156.9
Power Available for sale (M. Kwh)	2,909.3	3,153.6	2,957.2

† Provisional.

Source: Andhra Pradesh State Electricity Board.

Towns And Villages Electrified

The total number of Towns and Villages electrified in 1972-73 was 9984, distributed under-Andhra Pradesh Region 6673 and Telengana 3911.

The number of pumpsets energised by 1971-72, came to 212,204 for AP-126,778 for Andhra and 85,426 for Telengana.

Table 152

Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Kothegudam (Thermal) Situated in the Singaneri coal field area in Telengana region.	Stage I & II: 4 units of 60,000 kW. each. Stage III: 2 units of 110,000 kW. each	Whole of Andhra Pradesh, as power is fed into the State grid.
Machkund (Hydro)†. A dam at Jalaput 193 km. north west of Visakhapatnam and a diversion dam 22.53 km. below Jalaput across the Machkund river.	Stage I: 3 units of 21.25 MW each Stage II: 3 units of 21.25 MW. each	
Nagarjunasagar Pumped Storage. (Hydro). This project envisages a power house at the toe of the Nagarjunasagar Dam	2 units of 50 MW each	
Nellore (Thermal). At Padugapadu village 1.6 km. north of Nellore town.	One generating unit of 30,000 kW	Anantpur, Kurnool, Nellore, and Cuddapah districts.
Ramagundam (Thermal) Situated near Ramagundam Station in Telengana region.	Three units of 12,500 kW. each and one unit of 62,500 kW.	Warangal, Adilabad and Hyderabad
Srisailam (Hydro) A dam across the river Krishna near Srisailam, Kurnool district.	Stage I: 4 units of 110 MW. each Stage II: 3 units of 110 MW each	Whole State as the power generated from the station will be fed into the State grid.
Sileru H. E (Lower) (Hydro). The project is located on the down stream of the Upper Sileru Project with a main dam at Donkarayi and a powerhouse is located near Polloor about 24 km. from the Donkarayi dam.	4 units of 100 MW. each under Stage I, and 2 units of 100 MW under Stage II.	do.
Tungabhadra (H. E.) Nellore	30 MW	
Upper Sileru Hydro Power. (Hydro). The powerhouse is at Upper Sileru 64 km. from Chintapally and a diversion weir at Guntawada across the river Sileru in Chintapally taluk of Vishakapatnam district.	Two units of 60 MW each	Srikakulam, Visakhapatnam, Godavari (E. and W.) Krishna, Guntur and Nellore districts

---

Joint venture of the States of A P and Orissa.

Industrial Production. Judged even by Indian standards, AP is regarded an industrially backward state. The structure of industries in AP is heavily biased towards agriculture-based industries. Food and tobacco manufactures taken together, accounted for more than one-third of the industrial production. Agriculture based industries including textiles, accounted for about 70 per cent of the total factory employment

Among the mineral-based industries, cement and asbestos cement products are the two important industries. Hyderabad and Visakhapatnam are the two main industrial centres in the State.

Table 153

Production of Selected Industries

Particulars	*Unit*	*1971*	*1972*
Cotton	(Lakh Kgs)	297	267
Cotton Piece goods	(Lakh Mtrs)	389	299
Jute	('000 Tonnes)	57	58
Rayon Yarn	('000 Kgs.)	2,256	2,472
Rayon Fabrics	('000 Mtrs)	4,872	5,568
Liquors:			
(a) Country spirits	('000 Ltrs)	1,716	4,992
(b) others	('000 Ltrs)	10,464	13,032
Chemical Fertilisers	(Tonnes)	6,50,952	3,59,736
Machine Tools	('000 RS)	62,232	69,780
Asbestos Cement	(Tonnes)	1,37,160	1,43,376
Cement	(Tonnes	1,731,861	17,80,572
Coal	('000 Tonnes	3,900	5,136
Paper	(Tonnes)	1,00,932	96,732
Vanaspathi	(Tonnes)	16,080	12,564
Cigarettes	(Tonnes)	1,448	1,378
Sugar	(Crores)	278	450
Generation of Electricity	(Million (Kwh)	3,005	3,154
Barium Chemicals	('000 Kgs)	1,956	1,980
Sewing machines	('000 Rs)	26,484	24,444
Indian Detonators	'000 RS	26,964	45,120
Glass	(Tonnes	12,864	12,336
Drugs and Pharmaceutics	'000 Rs)	22,704	29,688
Manufacture of Bakery products	('000 Rs)	22,716	26,052

Source: Bureau of Economics and Statistics. Andhra Pradesh.

Literacy and Education

A. P. has a literacy percentage of 24.57 which is lower than the all India average of 29.45.

Table 154

Literacy by Sex

District	*Number of Literates in Lakhs* *Males*	*Females*	*Total*	*% of Literacy*
Andhra Region				
Anantapur	3.7	1.3	5.0	23.8
Chittoor	4.2	1.6	5.8	25.4
Cuddapah	2.9	1.0	3.9	24.7
East Godavari	5.8	3.8	9.6	30.8
Guntur	5.7	3.0	8.7	30.7
Krishna	5.3	3.5	8.8	35.2
Kurnool	3.4	1.3	4.7	23.6
Nellore	2.9	1.4	4.3	26.8
Ongole	3.2	1.2	4.4	23.2
Srikakulam	3.5	1.3	4.8	18.5
Visakhapatnam	4.2	1.8	6.0	21.3
West Godavari	4.8	3.4	8.2	34.4
Telengana Region				
Adilabad	1.4	0.4	1.8	14.1
Hyderabad	7.2	4.1	11.3	40.4
Karimnagar	2.4	0.6	3.0	15.3
Khammam	1.7	0.8	2.5	18.5
Mahbudnagar	2.3	0.7	3.0	15.6
Medak	[illegible]	0.5	2.4	16.1
Nalgonda	2.3	0.8	3.1	17.1
Nizamabad	1.7	0.5	2.2	17.2
Warangal	2.5	0.9	3.4	18.1
Total Andhra Pradesh	72.0	33.3	[illegible]	24.6

Source: Census of India, 1971- Part II A.

Table 155

Number of Educational Institutions

Type of Institution	*1969-70**	*1970-71**	*1971-72**
I University Education			
(a) Colleges for General Education	162	163	174
(b) Colleges for Professional and Technical Education	41	46	49
(c) Oriental Colleges	46	44	[illegible]
Total	249	253	[illegible]

II	Intermediate Education Junior Colleges	170	181	193
III Secondary Education				
(a)	High Schools	2,925	2994	3007
(b)	Middle Schools (Upper Primary)	2919	3000	3191
(c)	Primary Schools	757	37349	36855
(d)	Nursery Schools (Pre-Primary)	63	92	[illegible]
(e)	Schools for professional and special Education	301	249	n. a.
	Total (a to e)	42965	43654	43105

* Provisional

Source: Director of Public Instruction, Andhra Pradesh.

Table 156
Number of Students

	Number of Students	*1969-70*	*1970-71*	*1971-72*
I University Education				
(a)	Colleges for General Education	[illegible]	[illegible]	153436
(b)	Colleges for Professional and Technical Education	21615	21267	19917
(c)	Oriental Colleges	5377	5510	6593
	Total	179112	172947	179746
II	Intermediate Education Junior Colleges	15505	29948	51901
III Secondary Education				
(a	High Schools ('000)	1049	994	1001
(b)	Middle Schools (Upper Primary) ('000)	780	771	793
(c)	Primary Schools ('000)	3151	3223	3095
(d)	Nursery Schools (Pre-Primary) ('000)	3	4	n. a.
	Schools for Professional Technical and Education ('000	24	20	n. a.
	Total atoe ('000)	5007	5012	1883

Source: Director of Public Instruction, Andhra Pradesh

Universities. Andhra Pradesh Agricultural University, Dilkush, Hyderabad Andhra University, Waltair, Osmania University, Hyderabad and Sri Venkateswara University, Tirupati

Table 157
Newspapers
(Dailies)

Name	*Place of Publication*	*Language*	*Circulation*[1]
Indian Express	Vijayawada, Madurai, Madras and Bangalore	English	1,87,261
Deccan Chronicle	Secunderabad	,,	30,608
Indian Herald	Hyderabad	,,	5,000
Andhra Prabha	Vijayawada and Bangalore	Telugu	1,05,564
Andhra Jyoti	Vijayawada	,,	24,883
Andhra Patrika	Vijayawad and Madras	,,	41,925
Visalandhra	Vijayawada	,,	19,000
Andhra Bhoomi	Secunderabad	,,	15'289
Andhra Janata	Hyderabad	,,	5,000
Siasat	,,	Urdu	9,208
Rahnuma-E-Deccan	,,	,,	14,212

Average Ciculation Jan--June 1974 Source: ABC.
See also Newspaper - Tamil Nadu.

Table 158

Public Health

Medical Facilities (As on 31st March)

Sl. No.	*Particulars*	*Unit*	*1970*	*1971*	*1972*
I.	Allopathic				
(a)	Hospitals	No.	267	270	272
(b)	Hospitals for special treatment	,,	27	27	27
(c)	Dispensaries	,,	1,103	1,107	1,113
(d)	Beds†	,,	26,621	21,531	21,706
(e)	Government Doctors (i) Medical (ii) Public Health	,,	3,521	3,548	3,580
II.	Ayurvedic				
(a)	Hospitals	,,	4	4	4
(b)	Dispensaries	,,	1,137	1,210	1,235
(c)	Doctors and Vaids	,,	1,184	1,282	1,225
III.	Unani				
(a)	Hospitals	,,	1	1	1*
(b)	Dispensaries	,,	102	102	86*
(c)	Doctors and Hakims	,,	152	154	114*

† The figures relates to only the sanctioned beds in Government and Aided Institutions etc., (Allopathic) and excludes beds in Private Hospitals and Institutions other than under State Government in the State dispensaries.

§ Includes Municipal, Panchayath Samithis and Subsidised & Non-Subsidised dispensaries

* As on [illegible]

Source: 1. Director of Medical and Health Services, Andhra Pradesh;
2. Director of Indian Medicine, Homeopathy, Andhra Pradesh.

Tourism

Andhra Pradesh is rich in historical monuments. It possesses many holy temples, which attract large numbers of pilgrims and tourists

Tirupathi in Chittoor district houses one of the most famous temples in India. The presiding diety is known as Venkateswara. The main temple is situated on a hill top, Tirumalai and is a masterpiece of South Indian architecture.

The temple of Sri Ramachandra at Bhadrachalam, the Mallikarjuna-swami temple at Srisailam, the Ahobalam temple, Srikurmam temple and the Simhachalam temple, are among the other famous temples of Andhra Pradesh. The main tourist attraction is the capital of the State, *Hyderabad*. The capital is in reality the twin cities of Hyderabad and Secunderabad linked together by the Hussain Sagar. Places of interest are the Char Minar built in 1591, Osmania University, State Museum and Art Gallery; Salarjung Museum. Health Museum and Public Gardens. Another important centre of tourism is *Golconda*, about 5 miles from Hyderabad. The capital of the Qutb Shahi Sultans in the 16th century, Golconda is rich in historical mounments, which include the famous Golconda Fort Golconda was known the world over, as a rich mine of diamonds in the mediaeval times. The famous diamonds *Kohinoor* and *Pitt* came from the diamond mines of Golconda.

ASSAM

Area:	78,523 km
Population:	14,625,159
Principal Language:	Assamese
Capital:	Dispur*
Governor:	L. P. Singh
Chief Minister:	Sarat Chandra Sinha
Leg. Assembly Speaker:	R. C. Barua
Chief Justice:	M. C. Pathak

Scholars are not agreed on the origin of the name 'Assam' Some say that Assam is called so, because of its unequal terrain that is hills interspersed with valleys They rely on a similar sounding Sanskrit word, meaning unequal. This explanation appears to be far-fetched Others say, that Assam is derived from the 'Ahoms' who ruled the country for a long time. A more acceptable version is that Assam is only the anglicised version of 'Asom' which was the name the Ahoms gave to the country, when they conquered it.

Physiography

Assam, including Nagaland, Meghalaya, Manipur, Tripura and Mizoram, may be conveniently divided into five physical divisions, (1) The Assam Himalayas (2) The Brahmaputra Valley (3) The Shillong Plateau (now the Meghalaya) (4) The Barak Valley and (5) The south eastern hilly regions.

The Assam Himalayas represent the easternmost section of the great Himalayan range extending from the river Teesta in Sikkim over a length of 720 km. across the Brahmaputra towards China. The highest peak of Assam, Namcha Burwa (7,756 metres) is in the Mishmi Hills, in this region. *The Brahmaputra Valley* or the Assam valley is made up of two parts, the lower Assam valley where the plains are broken by isolated groups of hills and upper Assam valley, where unbroken plains lie from the Himalayas on the north west to the Naga hills on the southeast *The Shillong Plateau* is a range of mountains, in the centre of Assam and divides the Brahmaputra valley from the Barak valley. The plateau on the southern side is remarkably abrupt and faces the Barak valley while the northern edge slopes gradually to the Brahmaputra valley *The Barak Valley* consists mainly of swampy flats broken by numerous low isolated hills and ridges. The *southeastern hilly region* includes the Naga, Mizo and Manipur hills. With the exception of Manipur plains, there is little flat ground in this region.

Rivers

Assam is dominated by the Brahmaputra river. The total length of the river from the source to the sea is 2900 km. Its drainage area is roughly 9,35,500 sq. km It has 129 tributaries After travelling 1609 km. in Tibet, the river turns southeast making a hair pin bend at a place, a few miles east of Namcha Burwa. Thereafter it is joined by tributaries After crossing the Garo Hills, it makes a southerly turn and meets the Ganga at Goalundo. During the course of its flow in Assam for about 725 km, through almost every district, the river has carved out an extensive valley of its own

The Barak (Surma) river rules the southern side of the Shillong plateau It has a total length of 901 km and receives many tributaries. It divides itself into branches, which ultimately rejoin one another to form the river Meghna As Meghna, it joins the Brahmaputra and into the Bay of Bengal.

Rainfall in Assam is one of the highest in the world. The monsoon clouds are first intercepted by the Khasi and Jaintia Hills, which rising to a height of 1830 metres cause profuse rainfall in their southern slopes The Chirrapunjee-Mansynram area, records the world's highest rainfall. with an annual average of 1270 cm (or 500 in). Rainfall varies from about 178 cm in Kamrup to about 305 in the north eastern region In the Barak valley it is about 305 cm. All this rainfall is concentrated during the 4 months-June to September

Floods

Floods in Assam, very often come in a series one after the other. They cause widespread destruction and loss of life. The following table gives an idea of flood damages.

---

* Shillong, was originally the capital of Assam, When Meghalaya was carved out of Assam. Shillong functioned as the joint capital of Assam and Meghalaya. In 1973-74 Assam established a new capital at Dispur, about 6 km, from Gauhati.

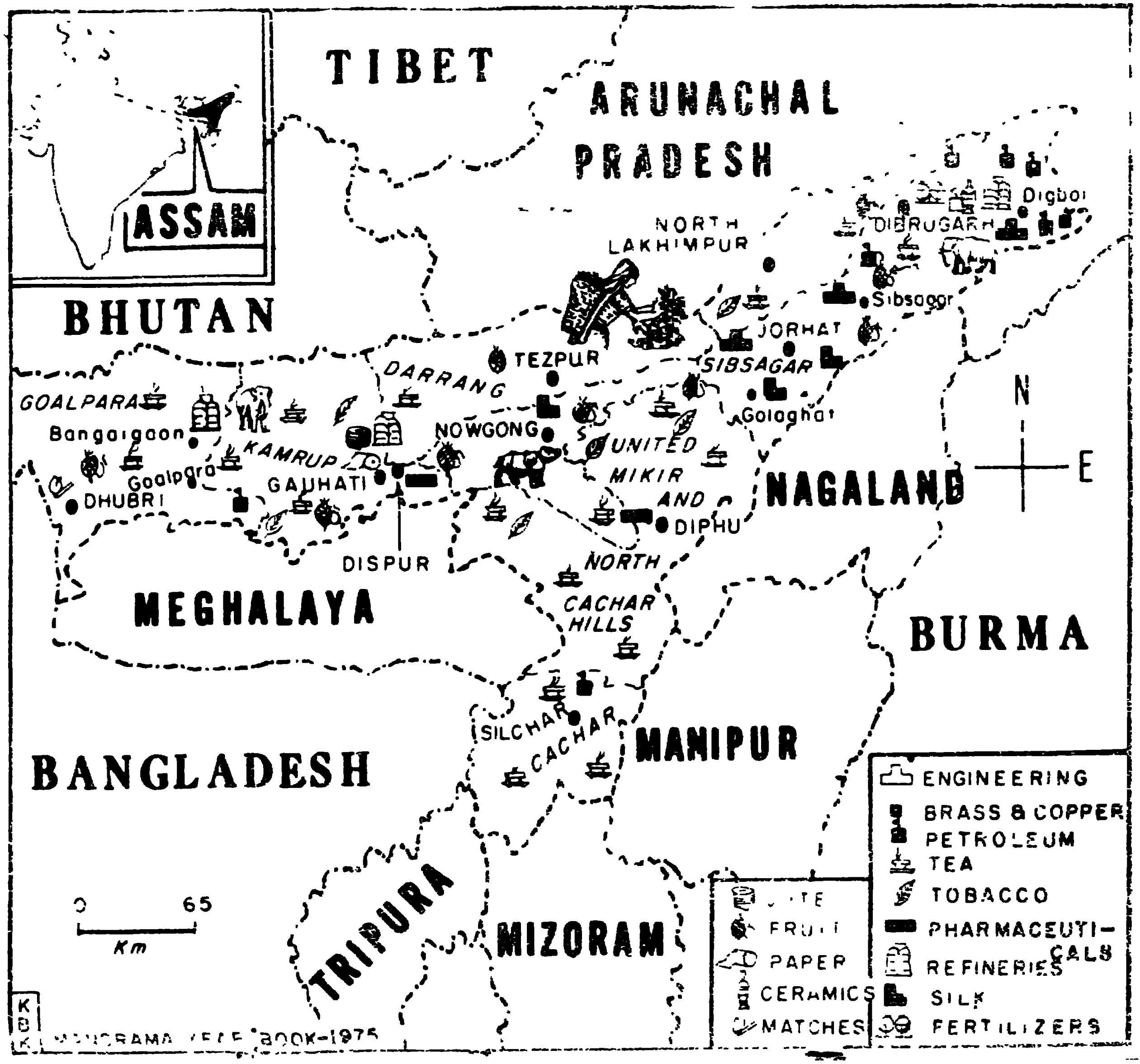
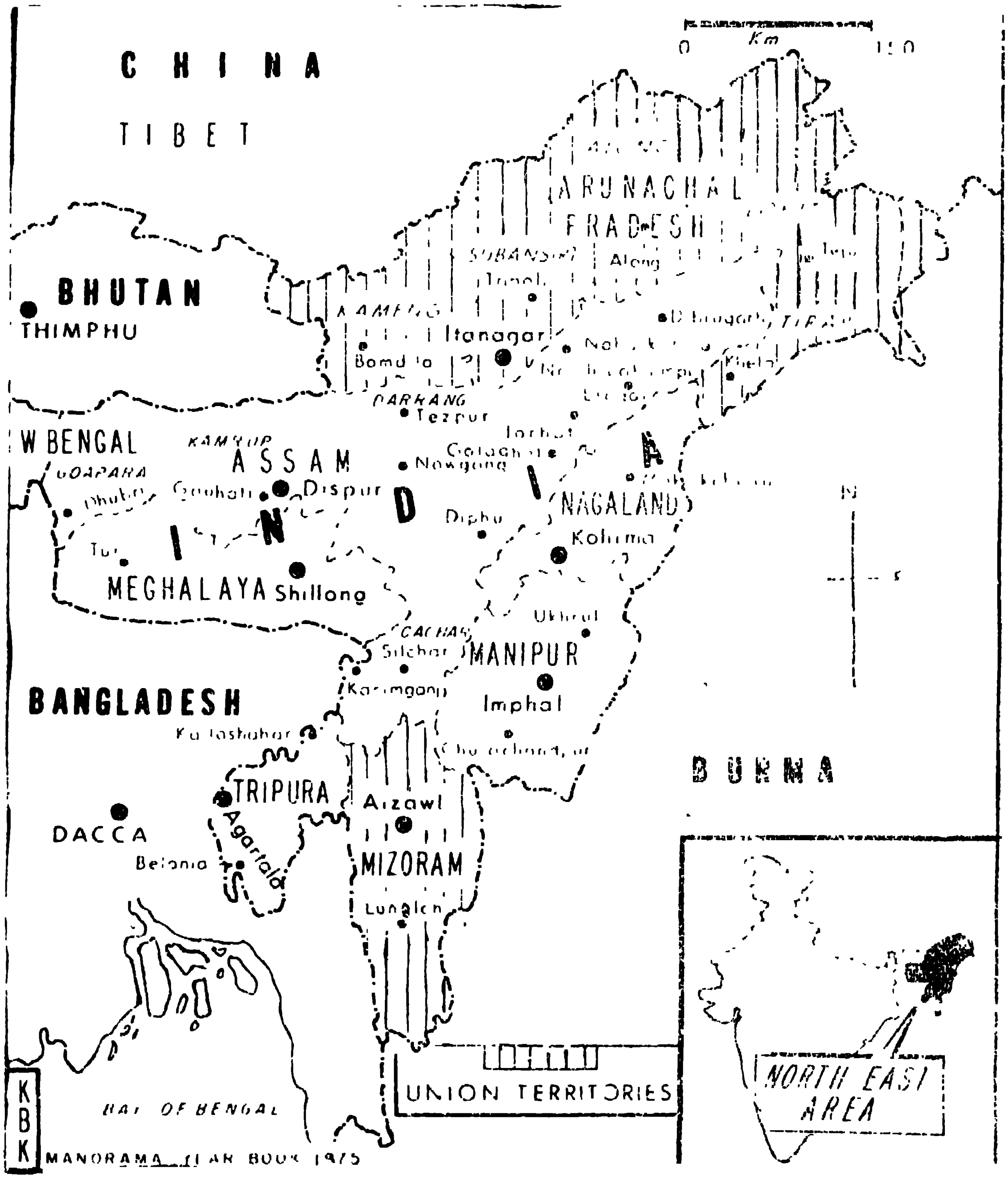

TIBET
ARUNACHAL PRADESH
BHUTAN
ASSAM
NORTH LAKHIMPUR
Digboi
DIBRUGARH
Sibsagar
JORHAT
SIBSAGAR
Golaghat
TEZPUR
DARRANG
GOALPARA
Bangaigaon
Goalpara
DHUBRI
KAMRUP
GAUHATI
NOWGONG
DISPUR
UNITED MIKIR AND NORTH CACHAR HILLS
DIPHU
NAGALAND
N
E
MEGHALAYA
BURMA
SILCHAR
CACHAR
MANIPUR
BANGLADESH
TRIPURA
MIZORAM
0
65
Km
JUTE
FRUIT
PAPER
CERAMICS
MATCHES
ENGINEERING
BRASS & COPPER
PETROLEUM
TEA
TOBACCO
PHARMACEUTICALS
REFINERIES
SILK
FERTILIZERS
KBK
MANORAMA YEAR BOOK-1975

Table 159

Year	*Value in Rs. in lakhs (Agri. crops)*	*Human lives lost (Nos.)*
1953	212.00	4
1954	1062.00	32
1955	246.58	..
1956	309.78	19
1957	107.01	5
1958	170.52	4
1959	606 53	20
1960	762.92	14
1961	43-05	3
1962	190.45	115
1963	197.40	13
1964	238.77	10
1965	65.00	5
1966	2170.00	57
1967	218.00	3
1968	803.00	19
1969	550.00	12

Earthquakes, like floods, are a common phenomenon in Assam. They may occur several times a year but ordinarily they do not do much damage. But now and then these earthquakes assume disastrous proportions. Of all these earthquakes, those of 1897 and 1950 have been the deadliest. The 1897 earthquake covered



an area of 200 miles in length and 50 miles in width in the Shillong plateau. The 1950 earthquake was worse and is considered to be one of the five greatest earthquakes in recorded history. It carried destruction over an area of about 15,000 sq. miles. This earthquake brought about drastic changes in the configuration and drainage of the State, so much so that floods which have occurred since have become the greatest destroyers of man and property in Assam.

History

Assam, known in ancient lore as Kamarupa, included in addition to modern Assam, parts of modern Bengal and Bangladesh. Gauhati, the pulsating centre of Assam is an ancient town, whose history goes back to the Puranic days The city known originally as Pragjvotishpur was said to have been founded by king Narakasur, who is mentioned in the Puranas and epics. His son Bhagadatta, led a large elephant force to the battle field of Kurukshetra, and fell fighting on the side of the Kauravas.

In the 13th century, the country was conquered by the Ahoms, under the leadership of Sukapha a prince of the Shan tribe, in the Upper Irravaddi Valley.

The advent of the Ahoms, changed the course of Assam's history. Ahoms fought the local Kachari, Chutice and Moran Kings and established their Sway in course of time, over the wholy Brahmaputra Valley

The Ahoms appointed Bharphakans (Viceroys) to rule Kamarupa, and Gauhati became the capital of these Viceroys The last of the Viceroys was Badanchandra, who in an ill advised bid for power invited the Burmese to help him. The Burmese dislodged the Ahoms and dismissed their Viceroy, Badanchandra The Ahoms appealed to the British for help.

The British defeated the Burmese in several battles, in what has since been called the First Burmese War. With the Treaty of Yandabo in 1826, the Burmese vacated Assam, leaving the British in possession. The conquered territory was placed under the administration of an Agent to the Governor General. In 1832 Cachar was annexed to Assam. In 1835, the Jaintia Hills came under the control of the British Upper Assam was annexed to Bengal in 1839. In 1874 a separate province of Assam under a Chief Commissioner was created, with Shillong as capital.

On the partition of Bengal in 1905, Assam was united to the eastern districts of Bengal under a Lt Governor. From 1912 the Chief Commissionership of Assam was revived, and in 1921 a governorship was created On the Partition of India almost the whole of the predominantly Muslim district of Sylhet was merged with East Bengal (former E. Pakistan present Bangladesh). Dewangiri in North Kamrup was ceded to Bhutan in 1951.

Assam lost a good deal of its former territory, as a result of political changes, from time to time. In 1948, the North East Frontier Agency was separated from Assam, for security reasons In 1963, Nagaland was carved out of Assam as a full fledged State On 21st Jan 1972, Meghalaya was cut out of Assam, as a separate State and Mizoram became a Union Territory

North East Areas (Reorganisation) Act 1971.

Under this Act which came into force on August 1, 1972 the administrative arrangements for the entire North Eastern Area were recast.

The North Eastern Area consists of the States of Assam, Nagaland, Meghalaya, Manipur and Tripura and the Union Territories of Mizoram (former Mizo Hills district) and Arunachal Pradesh (former NEFA). This area is 2.94 lakh sq km in extent, with a population of 18 7 million

North Eastern Council will consist of the Governor of Assam, Manipur Meghalaya and Tripura and the Chief Ministers of these States and the Governor and Chief Minister of Mizoram and the Chief Commissioner of Arunachal Pradesh. The Council is intended to be an advisory body whose chief function is to see that there is co ordinated development among the 5 administrative units of the North Eastern Area.

Administration

Legislature. The Legislature consists of only one house the Legislative Assembly—with 126 members. The State is divided into nine districts.

Table 160

District	*Area (sq. km)*	*Population (1971 census)*	*Headquarters*
1 Cachar	6962	1713318	Silchar
2 Darrang	8775	1736188	Tezpur
3 Goalpara	10359	2225103	Dhubri
4 Kamarup	9863	2854183	Gauhati
5 Lakhimpur†	12792	2122719	Dibrugarh
6 Nowgong	5561	1680895	Nowgong
7 Mikir Hills	10332	379310	Diphu
8 North Cachar Hills	4890	76047	Haflong
9 Sibsagar	8989	1837389	Jorhat

† Lakhimpur Dt. has been named Dibrugarh and the name of the Dt. Hq. changed from Dibrugarh to North Lakhimpur.

Table 161

Economic Structure Some Basic Facts

Character	*Assam*	*All-India*
Percentage to working force (1971)		
(a) Cultivators	55.8	43.3
(b) Agricultural labourers	9.9	26.3
(e) Non-agricultural workers	34.3	30.4
Percentage of villages electrified as on March 31, 1973	4.0	24.6
Per capita value added by manufacture in Rs (1969)	22	48
Bank offices per lakh population (December end 1973)	1.2	3.9
Per capita income in Rs (1970 71)	523	633

Land Holdings. The size and distribution of holdings of less than 5 acres constitute 74.2 per cent of the total number of holdings though they represent only 43.3 per cent of the total operated area. These holdings are uneconomic. The holdings of a size of 5 acres to 14.99 acres constitute 24.1 per cent of the total number of holdings and account for 46.3 per cent of the total operated area.

Agricultural crops The most striking feature of Assamese agriculture, is its high productivity This productivity is mainly due to the unique fertility of the Brahmaputra Valley, which is the bread basket of Assam. This valley contains 80 per cent of Assam's cultivated area and produces 80 per cent of its rice, 98 per cent of jute, 85 per cent of tea, 95 per cent of oil seeds and 85 per cent of sugar cane

Rice is the most important food crop in Assam occupying nearly two thirds of the total land under cultivation. Winter rice known as *Sali* or *Aman*, is the most important variety and autumn rice *Ahu* or *Aus* is the next. A third crop of minor importance, known as spring rice or *Boro* is sown between *Sali* and *Ahu* and harvested in February and March.

Food Crops. Assam has a peculiar food position. The State is surplus in cereals. but has an acute shortage of pulses and oilseeds.

Sugar-cane is another crop grown practically in every district for making *gur* by the indigenous method. Sibsagar is the leading district in sugar cane, having 15,000 acres under it out of a total of about 65,000 acres for the whole State.

Jute. Since the partition of India in 1947, the major jute growing regions having gone to Pakistan, Assam has made rapid progress in the cultivation of this important cash crop. Nowgong, Goalpara, Kamrup and Darrang are the leading jute-producing districts.

Tea cultivation in Assam started as early as 1835 near the confluence of the Brahmaputra and the Kundil rivers under the initiative of the British Government Before that C. Bruce, brother of R. Bruce, the discoverer of tea in 1823, was appointed Superintendent of the Government Tea Forest.

The Assam Tea Company took charge of the government plantation in 1840, and this can be regarded as the real start of tea cultivation in Assam The first factory was established at Dibrugarh and fed by both planted and wild tea leaves.

In 1971, Assam Valley produced 201,046,928 kg * of tea, out of a total of 331,191,897 kg. for the whole of North India.

Table 162

1972 73

Production & Yield of Principal Crops

Crops	*Area (Hect.)*	*Production ('000 tonnes)*	*Yield per Hect.*
Rice	2068.8	3643.7	1413
Wheat	112	160.4	1432
Total pulses	98.1	48	489
Rapseed and mustard	157.8	65	412
Jute	134.4	1610.1	1353
Sticklac		20 tons	

Irrigation. The main problem of Assam is inundation rather than irrigation. Frequent and widespread floods and extensive water logging have become an inevitable and regular phenomenon in Assam. The great earthquake of 1950 caused extensive landslides and silting up and changes in river beds in the plains Since then, the rivers have plagued the people of Assam, with regular floods, causing extensive damage to the economy

Animal Husbandry Assam has a large livestock population but their quality is very poor. The cattle in this state are small in size, poor in health and not strong enough either to draw heavier types of improved ploughs or to pull fully loaded carts. The number of cattle per acre of cultivated area is highest in Assam of all states in India. The yield of milk is also very low, being only 140 lb per cow and 315 lb per buffalo per year, while for all India it is 413 lb and 1101 lb respectively. The per capita availability of milk per day is 1.2 oz as against the requirements of 10 oz according to approved nutritional standards

---

* *Source*: Tea Statistics, 1971-72

Forests. The forest area of Assam occupies about 47.9 thousand sq kilometres and covers about 39 per cent of the State's total area compared to 17.2 per cent for India as a whole All types of forests are represented in Assam. Evergreen forests, mixed deciduous forests, deciduous and dry deciduous forests, riverine forests, savannah forests, swamp forests, bamboos and temperate forests containing sal, teak, hollock, holong, bansam, amari, gamari, ajhar, sissoo, simul, cane, bamboos, reeds and various species of medicinal importance.

The forests of Assam may be classified into the following categories (1) Reserved forests (16,558 sq. km) (2) Protected forests 285 sq km.) (3) Unclassified state forests (28,957 sq. km) (4) Ex-Zemindari forests (1,165 sq. km) and (5) Private forests (990 sq. km).

The following table shows the distribution of forests in different districts in 1961 62. in thousand acres

Table 163

District	*R.F.*	*P.F.*	*U.C.F.*	*Total*
Goalpara	582.1	—	344.3	726.5
Kamrup	280.9	—	813.6	1094.5
Darrang	386.1	—	18.5	404.5
Lakhimpur	477.7	—	658.2	1135.9
Sibsagar	454.3	-	138.8	593.1
Nowgong	226.6	—	50.7	277.3
Cachar	588.0	--	43.1	631.1
K & J Hills	108.2	62.5	—	170.9
Garo Hills	65.8	—	131.1	196.9
United Mikir & N C. Hills	684.3	--	149.2	833.5
Mizo Hills	138.9	7.7	4838.4	4984.9
Total	4009.8	70.2	7185.9	11048.9

Fauna. The State possesses one of the richest fauna in Asia and it is claimed that outside Africa, there is no part in the world with so many varieties of animals, birds, reptiles and insects. Rhinoceroses, elephants, wild buffaloes, bisons and mithuns, swamp deer, sambhar, spotted deer, barking deer, tiger, leopard, black panther, king cobra, pin-headed duck and giant hornbil are some of the well known specimens of wild life.

Power Assam has the largest power potential in India based on water, natural gas, coal and oil. The hydroelectric power potential of Assam is estimated at 12 million kW which is nearly one-third of India's total hydel potential. Though the State's power potential is large, its per capita consumption is on the low side, 17 kWh in 1969-70.

Table 164

Power Projects

Name and Location	*Instlled capacity*	*Areas Benefited*
Gauhati Thermal Station At Gauhati, on the southern side of river Brahmaputra near Narangi and Chandrapura.	One unit of 12,500 kW-gas turbine set at Narangi and another unit of 30,000 kW. steam turbine set at Chandrapura.	Gauhati and neighbouring areas.
Namrup (Thermal). At Namrup i the Lakhimpur district about 20 km west of Naharkatiya Oil fields	Stage I: three units of 23,000 kW each gas turbine sets. Stage II: one unit of 30,000 kW. steam turbine set and an extension of one unit of 30,000 kW.	Dibrugarh, Tinsukiya, Nazira, Jorhat, Doomdooma, Golaghat and Nagaland.
Umium (Hydro). Stage I: A dam across Umium river about 14.4 km. from Shillong Stage II. A weir across Umsumer stream, down stream of Umium power station.	Stage I: four units of 9,000 kW each Stage II: two units of 9,000 kW each. Stage III: one unit of 120 MW.	Kamrup, Khasi and Jaintia Hills, Cachar Darrang and Goalpara.

Literacy and Education

Assam had a literacy of 28.72 per cent in 1971, which though higher than that of some other States, is still below the national level of 29.45 per cent.

In 1971-72 the total number of educational institutions and students were as under.

Universities. Assam Agricultural University, Jorhat.; Gauhati University, Jalukbari, Gauhati Dibrugarh University, Dibrugarh.

Table 165

Newspapers

(Dailies)

Name	*Town*	*Language*	*Circulation*†
The Assam Tribune	Gauhati	English	24,316
Assam Express	,,	,,	n. a
Dainik Assam	,,	Assamese	20,860

† Average circulation Jan-June 1974.
Source: *ABC*.

Table 166

No. of Institution & Enrolment in Educational Institution in Assam (Provisional)

Types of Institution	*No. of institution*		*No. of Student*	
	1970-71	*1971-72*	*1970-71*	*1971-72*
University	3	3	2448	2631
Board of Secondary Education	1	1	N. A.	N.A
College for General Education	98	88	60,012	55,659
College & Institution for Professional Education:-				
a Agriculture College	1	1	43	528
b Commerce College	4	4	1882	2715
c Engineering College	2	2	1234	1136
d Polytechnic Institute	4	4	724	810
e Industrial Training Institute	9	6	1325	1194
f Law College	2	2	N. A.	N. A
g Medical College	3	3	2357	2453
h Ayurvedic College	1	1	65	N. A.
i Veterinary College	1	1	308	376
j Non Basic Training College	3	3	N. A.	N. A.
k Assam Textile Institute	1	1	N. A.	N. A
Special College for oriental studies	1	1	N A	N A.
School for General Education:-				
a Sainik School	1	1	486	462
b Higher Secondary School c High School	1346	1342	400731	391492
d Middle School e Senior Basic School	3092	3083	370170	372446
f Primary & Junior Basic School	17723 72	18035	1394752	1398796
Professional School:				
a Agriculture	1	1	43	N. A.
b Commerce	23	24	2023	5123
c Musical Dancing	19	24	815	19218
d Nursing and Midwifery	3	4	56	N.A
e Basic Training School	26	24	1759	1452
f Non-Basic Training School	10	8	1031	926
g Other Technical School (Arts & Crafts)	12	9	1248	1517
h Survey	1	1	255	230
School for special Education				
a Blind			614	56
b Deaf/Mute			57	65
School for other education				
a Adult Education	497	340	9953	9340
b Oriental Studies	102	99	4013	3573
c Jails	6	6	970	126

Statistical Hand Book, Assam 1973.

Minerals. Assam has rich mineral resources. The known minerals of the State are petroleum, coal, limestone, sillimanite, asbestos, corundum, fireclay, China clay, Fuller's earth, feldspar, gold, iron and copper. But so far only four of them namely coal, petroleum, limestone and sillimanite have been exploited on a commercial scale.

Coal. Estimates of coal reserves in the State have been variously placed between 2,000 and 3,500 million tonnes. Roughly, this amounts to about 3 per cent of the country's total reserves. Estimates of the workable reserves of coal in the State are as follows:

	Million tonnes
Garo Hills	242
Khasi & Jaintia Hills	152
Mikir Hills	4
Upper Assam	110
Total	808

Industries. Assam is very rich in industrial raw materials, but much of the wealth remains unutilised The industrial development of this State is mainly handicapped by her isolation from the rest of India, a bad transport system and a very small local market.

Due to historical factors, Assam received strong stimuli for the development of coal, petroleum and sizable tea industry at a fairly early stage.

Since then, the only major industry to develop is the oil industry. The establishment of the Rs. 100 crore refinery-cum-petro chemical complex at Bongaigon (170 km. from Gauhati) marks a milestone in Assrm's industrial development. Other industries to come up recently have been, the Asok Paper Mills Ltd, Assam Alkali Allied and Chemicals Ltd, Assam Petro chemicals Ltd., the Namroop Fertiliser Plant and a sugar mill at Cachar.

BIHAR

Area	173,876 sq. km
Population.	56,352,369
Principal Language.	Hindi
Capital:	Patna
Governor:	R. D. Bhandare
Chief Minister	Abdul Gafoor
Leg. Council Chairman·	Ram Govind Singh
Leg. Assembly Speaker:	Hari Nath Mishra
Chief Justice:	S. N. P Singh

The name 'Bihar' is a corrupt form of 'Vihara', which means a Buddhist monastery. Bihar, squeezed in between W. Bengal, Orissa, M P and U P reaches up to the Himalayas in the north and is completely land locked It is the ninth biggest State in India, but the second biggest in population. Bihar is bounded on the north by Nepal, on the south by Orissa, on the east by W. Bengal and on the west by M P and U P.

Physiography

The most striking geographical feature of Bihar is the sharp division between north and south The northern portion is almost entirely a level tract. while the southern region is wooded and hilly North Bihar is an extremely fertile strip of land, being watered by the rivers, Sarayu, Gandak and Ganga. Southern Bihar, especially in and around the districts of Chota Nagpur and Santhal Parganas, is thickly wooded and consists of a succession of hills. The elevation varies from 300 to 1,300 m, the highest peak being 1,372 m.

History

Bihar has a very ancient and colourful history. Known in ancient days as Magadha, Bihar was the home state of the Mauryan emperors. Under Asoka the Great, Magadha and its capital Pataliputra became famous all over the world With the death of Asoka, its fortunes declined However, under the Gupta emperors it regained its lost glories. Under the Sultans of Delhi, and later under the Moghul emperors, Bihar was reduced to the status of a province, whose only importance was that it lay on the route from Bengal to Delhi.

When Sher Shah, a Behari himself, drove out Humayun and occupied the throne of Delhi. Bihar once again shot into the limelight. Sher Shah founded the city of Patna, on the site of the ancient capital Pataliputra and gave the country an efficient administration. Bihar enjoyed a period of peace and stability under Akbar the Great and later Moghuls. With the decline of the Moghul empire, Bihar passed into the hands of the Nawabs of Bengal. The British wrested the country from the Nawab of Bengal, by the decisive battle at Buxar in Bihar (1764). Under the British, Bihar was first a part of the Bengal Presidency. In 1911, Bihar, along with Orissa was separated from the Presidency of Bengal. In 1936, Bihar and Orissa became separate provinces

Administration

Legislature. The Legislature consists of one house only the Legislative Assembly The Assembly has 318 members

The State was originally divided into 17 districts. In 1972 73, these 17 districts were split up and re-formed to make 28 districts in all.*

Details regarding the new districts are not available.

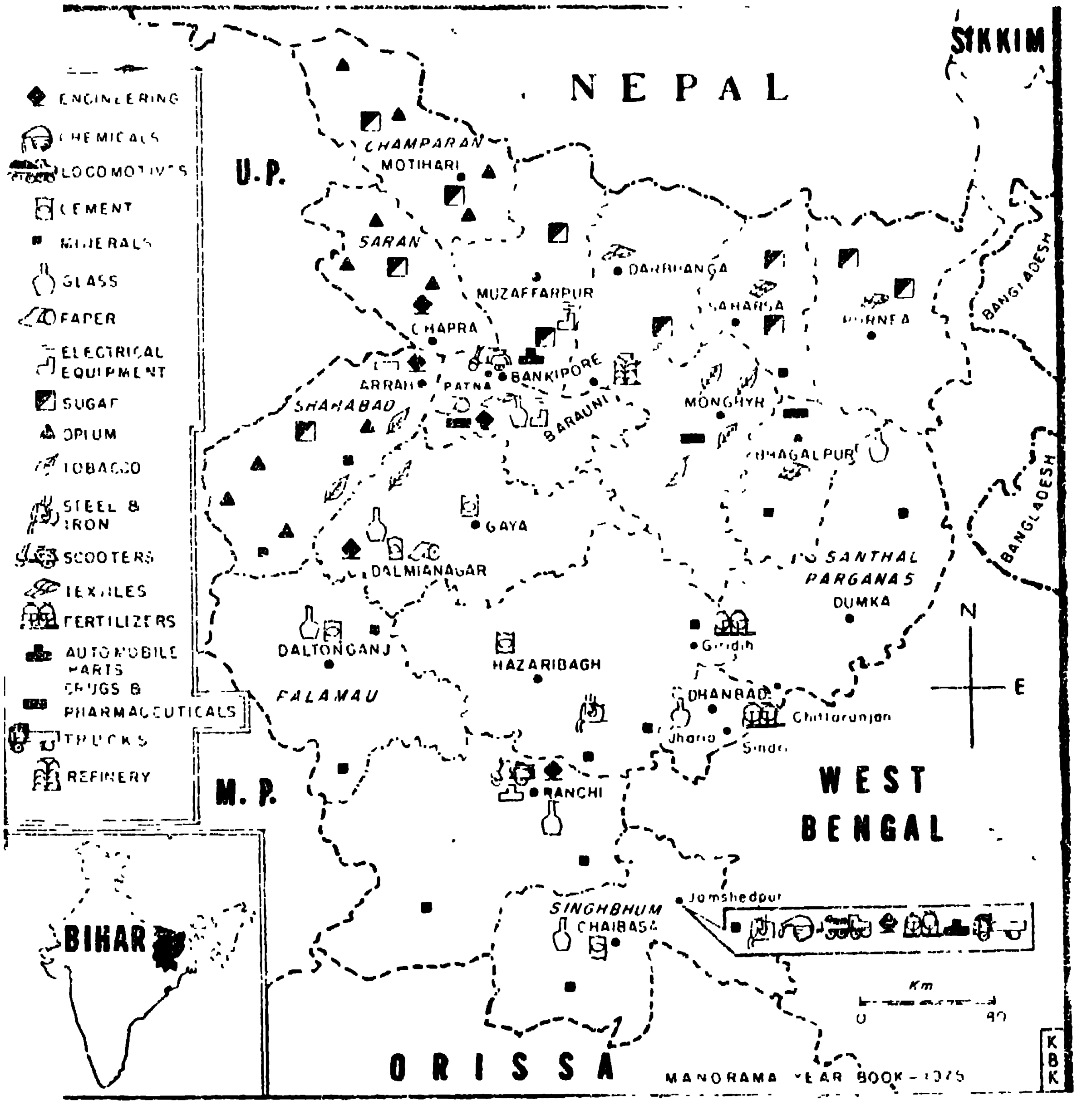


Table 167

Area, Population and Headquarters of Districts

District	Area (sq. km.)	Population (1971 census)	Headquarters
1 Bhagalpur	5656	2091103	Bhagalpur
2 Champaran	9196	3543103	Motihari
3 Darbhanga	8679	5233904	Darbhanga
4 Dhanbad	2994	1466417	Dhanbad
5 Gaya	12344	4457473	Gaya
6 Hazaribagh	18060	3020214	Hazaribagh
7 Monghyr	9827	3892609	Monghyr
8 Mozaffarpur	7358	4840681	Muzaffarpur
9 Palamau	12677	1504350	Dalton ganj
10 Patna	5528	3556945	Patna
11 Purnea	11013	3941863	Purnea
12 Ranchi	18331	2611445	Ranchi
13 Saharsa	5885	2350268	Saharsa
14 Santhal Parganas	14129	3186989	Dumka
15 Saran	6952	4279253	Chapra
16 Shahabad	11320	3939031	Arrah
17 Singhbhum	13447	2437799	Chaibasa

A Historic Surrender. Bihar has had an unstable administration from 1967 onwards. Ministries changed like the patterns in a kaleidoscope. In the protean politics of the state, one achievement of the administration stands out as creditable This was the surrender of a tribe of hereditary criminals of July 15, 1972 This tribe known as *dusadhs* had their head quarters in Raipur (Darbhanga district) on the Indo-Nepal border From there they sallied out to north Bihar, W Bengal and UP, committing all sorts of crimes from theft to dacoity and murder When their criminal activities touched a new high in 1971, the Kedarnathe Pandey ministry, then in power in the State decided to win over these hereditary criminals to law and order The surrender of the notorious gangsters of the Chambal Valley in April, 1972 spurred the government in the matter. The attempts succeeded when 1,008 criminals surrendered with their arms to the Chief Minister at a function held in Madhubhani, a town near the Indo Nepal border Their rehabilitation has now become a problem for the state

Economic Structure

Agriculture. The total geographical area of the State is estimated to be 42 82 million acres out of which nearly 21 12 million acres are cultivated. Including double cropping, the total gross cropped area of the State is estimated at 26.77 million acres. The areas under culturable waste and fallow lands are 1.38 and 5.12 million acres respectively.

Table 168

Some Basic Facts

Character	Bihar	All India
Percentage to working force (1971)		
(a) Cultivators	43 3	43.3
(b) Agricultural labourers	38.9	29 3
(c) Non-agricultural workers	17.8	30 4
Percentage of villages electrified on Dec 31, 1973	14 1	26 2
Per capita value added by manufacture in Rs. (1969)	25	48
Bank offices per lakh of population December-end (1973)	1.2	3.0
Per capita income in Rs (1968-69)	402	549

Agriculture

Table 169

Principal Crops, Area and Production

Crops	Area (Hect.)	Production (000 tonnes)	Yield per hectare Kg.
Rice	4715.5	4464 5	947
Maize	855 0	800 0	936
Ragi	144 8	62.6	432
Small millets	183.6	67 8	369
Wheat	2509.1	3136.4	1250
Barley	218.5	120.4	551
Total Pulses	1474.5	656 0	445
Castorseed	6 0	9 9	
Rapseed and mustard	84	44	524
Linseed	82	26	317
Nigaseed	50.8	13.6	268
Cotton	4.0	20.4	
Jute	131 4	687.5	912
Mesta	31.1	149 1	855
Potato	105 0	783 6	7463
Sugarcane (gur)	134 3	475 3	3539
Cane	134 3	475 3	3539
Turmeric	8 5	15 2	
Coriander	7 0	2.7	
Sticklac(71 72)		16208 tons	

Irrigation. By the end of the Third Five Year Plan total irrigation potential of 26.97 lakh acres was created from medium and State-owned major irrigation schemes against which the utilisation was of the order of 26 lakh acres

Table 170

Irrigation Projects

Name and Description	*Benefit area (in hectares)*
Badua. A dam across the river Badua at Hanuman Pahar	42,493 50
Chandan. A dam on the river Chandan near Village Lakshmipur.	70,382
Gandak. A barrage across the river Gandak at Balmikinagar about 760 m below Tribeni Canal.	1,198,755*
Kosi. A barrage across the river Kosi near Hanumannagar on Indo-Nepal border and flood embankments along the bank of Kosi river in Sahar and Darbhanga.	990,000
*Sone Barrage*** A barrage at Indrapuri 8 km upstream of the anicut at Dehri on Sone in the district of Shahabad.	1,257,000

Includes 47,755 hectares in Nepal.

Includes Soni High Level Canal

Tabls 171

Live Stock

	1966
Cattle	15,150,456
Buffaloes	3,654,368
Sheep, goats etc.	28,655,428
Fowls & other Poultry	10,849,854

Forests cover about 19 per cent of the total land area The total area of reserved, protected and unclassed forests in Bihar is 11,883 sq. miles. There are two national parks, 16 game sanctuaries and 234 shooting blocks in the State.

The main forest products are timber, bamboos, kendu leaves for making beedis, gums, resins and lac

Lac is the principal natural produce of Bihar. Bihar in fact, holds a sort of monopoly in lac production as the table below shows:

Percentage share of Bihar to total production of Stick Lac in comparison to other States.

Table 172

State	*Normal*
Bihar	51.1
MP	25.2
W. Bengal	10.3
Maharashtra	2.1
Rest	11 3
Total	100 00

Source: *Directorate of Statistics and Evaluation, Bihar*

Minerals. Bihar is India's principal source of minerals. Bihar excels not only in the wide range of mineral wealth that it possesses but also in production of various vital minerals.

Bihar accounts for 48 per cent of the country's coal, 100 per cent of copper, 48 per cent of bauxite, 45 per cent of mica, 100 per cent of kyanite and 90 per cent of apatite

Other minerals having significant production in Bihar are manganese, limestone, graphite, chromite, felspar, columbite saltpetre, glass sands, slate lead, mica, silver, building stones and radio active minerals.

Power is in short supply in Bihar. Though the installed capacity at present is 600 M.W. the actual generation is only about 50 per cent of the capacity.

Table 173

Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Barauni (*Thermal*). On the northern bank of the river Ganga in Monghyr district.	Stage I: Three units of 15 MW. each, Stage II: Two units of 50 MW each and Stage III: one unit of 120 MW.	Whole of north Bihar and part of south Bihar.
Patratu (*Thermal*) Located in Hazaribagh district about 6 km. from Patratu Rly. Station	Stage I: Four units of 50 MW each, two units of 100 MW. each, and Stag II: two units of 110 MW. each	South of Bihar and Chota Nagpur.
Subarnarekha. (*Hydro*). A dam across the river Subarnarekha at Getalsud, 30 km. from Ranchi	Two units of 65 MW each.	Ranchi and adjoining areas

Industries. The Government of India has set up in Bihar, a large number of giant undertakings, such as Bokaro Steel, Barauni Refinery, Fertiliser Factory and Heavy Engineering Corporation. Jamshedpur, India's "Steel town" is also located in Bihar

Strangely enough, these gigantic industries haven't made any impact on the economy of the State. As Kedar Pandey, former Chief Minister of Bihar observed, these projects "stand out as tiny oases in the desert of considerable poverty."

The State Government is at present considering the establishment of several new industrial units, so as to give a boost to the economy of the State The Mica Syndicate, sponsored by the State Government is already functioning

There are 28 sugar factories, seven cement factories, seven distilleries, three jute mills and one wagon building unit.

Among cottage industries silk and handicrafts occupy the leading positions. A spun silk mill in the public sector has been set up in Bhagalpur.

Literacy and Education

Bihar is far behind in literacy with 19.94 per cent literates, as against the national average of 29.45 per cent

Educational Institutions

Schools. The State government provides free and compulsory primary education for all children of the age group 6-11. There are 48,210 primary schools with 5.3 million pupils and 103,000 teahers The number of pupils in the middle school, in the age group of 11 14, is 1,043,000. The number of high school attending pupils is 733,569. There are 2,681 secondary schools and about 1,000 specialised schools.

Universities. Bhagalpur University Bhagalpur; Bihar University, Muzaffarpur; Kameshwar Singh Darbhanga University Darbhanga; Magadh University, Bodh Gaya; Patna University, Patna; Ranchi Univesity, Ranchi and Mithila University Darbhanga. There are 270 science and arts colleges.

Table 174

Newspapers

Dailies)

Name	*Place of Publication*	*Language*	*Circulation*
Indian Nation	Patna	English	* 50,96
Aryavarta	,,	Hindi	74,92
Searchlight	,,	English	NA
Pradeep	,,	Hindi	NA

* Average circulation Jan-June 1974

Source: ABC.

Tourism

Places of tourist interest are Buddha Gaya, Jamshedpur, Nalanda, Patna, Ranchi and Sasaram.

Budha Gaya, near Gaya in Bihar is a Buddhist centre of pilgrimage. It contains the famous mediaeval temple near the Bodhi Tree under which Buddha is reputed to have received enlightenment

Jamshedpur, in Bihar is India's steel town.

Nalanda, was one of the great seats of learning in ancient India and contains ruins of many Buddhist temples and monasteries.

Patna, capital of Bihar stands on the site of the ancient city of Pataliputra

Sasaram, in Bihar is famous on account of the magnificent tomb of Sher Shah, Emperor of Delhi.

GUJARAT

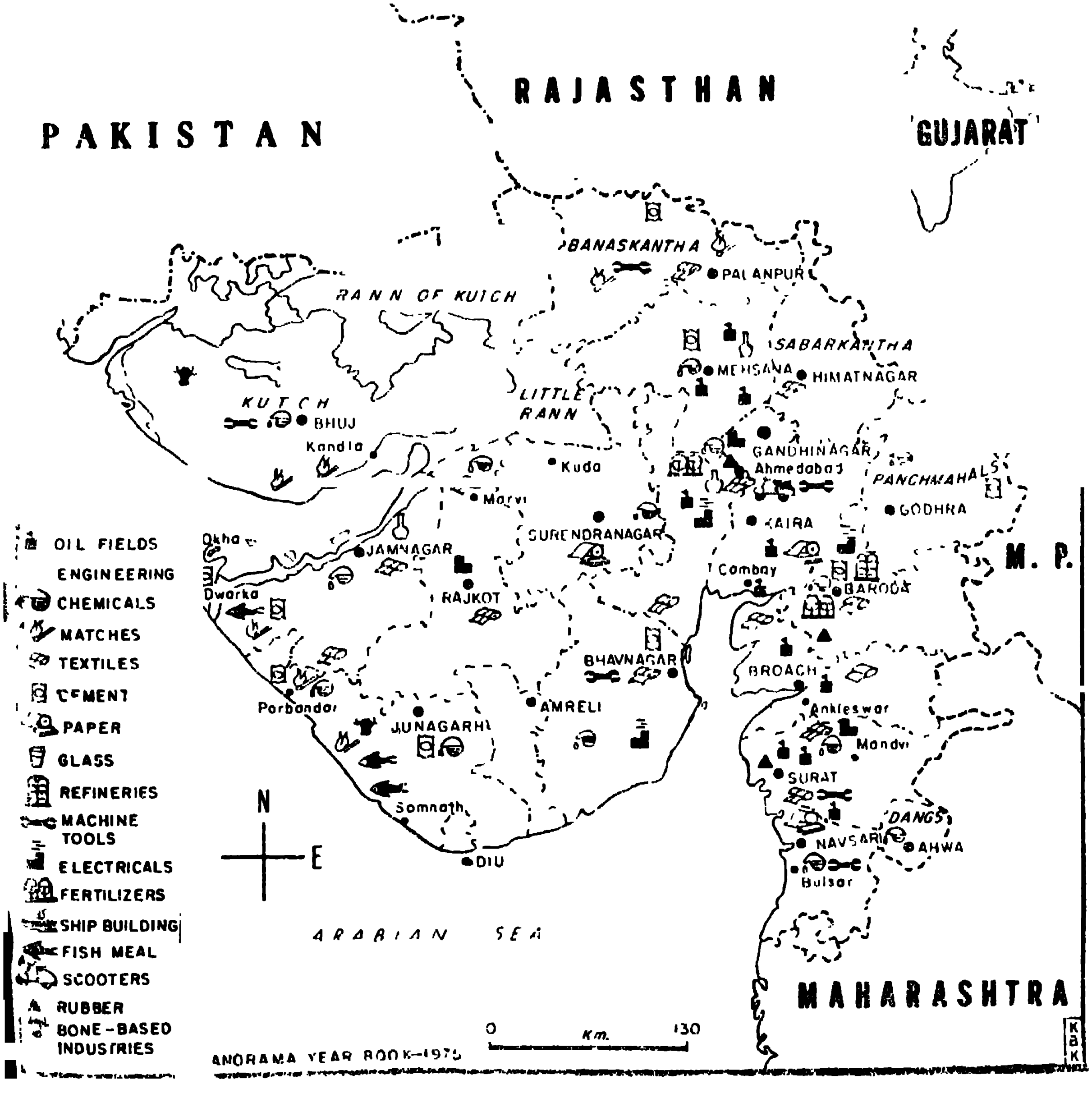
Area:	195,984 sq. km
Population:	26,097,475
Principal Language:	Gujarati
Capital:	Gandhinagar
*Governor:**	K K Viswanathan
Adviser:	H C. Sadin
Chief Justice:	B J. Divan

President's rule was imposed in Gujarat on the 9th February, 1974, following the resignation of Chimanbhai Patel, Chief Minister. The Legislature was not dissolved.

Gujarat lying in the north west corner of India is the eighth biggest State in point of area and the ninth in point of population. It is bounded on the north-west by Pakistan, on the north by Rajasthan, on the east by MP and on the south and south east by Maharashtra.

Physiography

The State of Gujarat occupies the northern extremity of the western seaboard of India. The State comprises three geographical regions: (1) The peninsula,



traditionally known as Saurashtra, juts out into the sea like an ugly head. It is essentially a hilly tract sprinkled by low mountains (2) Kutch on the north east is barren and rocky and contains the famous Ranns (desert) of Kutch, the big Rann in the north and little Rann in the east. (3) The mainland extending from the Rann of Kutch and the Aravalli Hills to the river Damanganga is on the whole a level plain of alluvial soil. the plains of Gujarat are watered by big rivers like Sabarmati, Mahi, Narmada and Tapti and by smaller rivers like Banas, Saraswathi and Damanganga. The rainfall in the State, except in the arid zones of Surendranagar and north Gujarat varies between 65 and 127 cm. As the Tropic of Cancer passes through the northern border of Gujarat, the State has an intensely hot or cold climate. But the Arabian Sea and the Gulf of Cambay in the west and the forest-covered hills in the east soften the rigours of climatic extremes

History

The early history of Gujarat is lost in antiquity and is intermingled with myths and legends. In historical times, we find Gujarat as a part of the great empires of India—the Mauryan, the Gupta and the lesser empires of later times The foundations of modern Gujarat were laid in the 10th century by Mulraj Solanki a ruler of the Chalukyan dynasty. By the end of the 13th century Gujarat passed under Muslim rule. As a result, Gujarat evolved a happy synthesis of Hindu and Muslim cultures, which are still preserved in many ancient monuments of Ahmedabad. Under the British rule, Gujarat was vivisected to suit the convenience of the British administrators. After Independence, the Princely States of Gujarat like Baroda, Jamnagar, Bhavnagar, Junagadh and many others were incorporated with the rest of Gujarat to form a single administrative unit. On the 1st of May, 1960 Gujarat was formed into a separate State under the Bombay Re-organisation Act of 1960. Under this Act, the erstwhile bilingual State of Bombay was bifurcated into two linguistic States The predominantly Gujarati-speaking areas were segregated to form the State of Gujarat, and the remaining Marathi speaking areas, were renamed as Maharashtra State. The State of Maharashtra retained the old common capital—Bombay, Gujarat chose Ahmedabad as its temporary capital. The present capital is Gandhinagar, newly built, 15 miles north of Ahmedabad on the west bank of the Sabarmathi river.

Administration

The Legislature has only one house, the Legislative Assembly—consisting of 168 members.

The State is divided into 19 districts.

Table 175

	District	*Area (sq km)*	*Population (1971) census)*	*Headquarters*
1	Ahmedabad	8707	2910307	Ahmedabad
2	Amreli	6760	848730	Amreli
3	Banaskantha	12702	1265383	Palanpur
4	Bharuch	9045	1109601	Bharuch
5	Bhavnagar	11155	1405285	Bhavnagar
6	Gandhinagar	649	200642	Gandhinagar
7	Jamnagar	14125	1111343	Jamnagar
8	Junagadh	10607	1656677	Junagadh
9	Kheda	7194	2451387	Kheda
10	Kutch	45612	849769	Kutch
11	Mahesana	9027	2092468	Mahesana
12	Panchmahals	8866	1848804	Godhra
13	Rajkot	11203	1624072	Rajkot
14	Sabarkantha	7390	1187637	Himatnagar
15	Surat	7745	1786924	Surat
16	Surendranagar	10488	845154	Surendranagar
17	The Dangs	1683	94185	Ahwa
18	Vadodara	7788	1980065	Vadodara
19	Valsad	5238	1428742	Valsad

Economic Structure

Gujarat is one of the few States in India, that has put all its available land to use. Broadly speaking three-fourths of the land in the State is profitably utilised.

Table 176

Some Basic Facts

Character	*Gujarat*	*All India*
Percentage to working force (1971)		
(a) Cultivators	43.1	43.3
(b) Agricultural labourers	22.5	26.3
(c) Non-agricultural workers	34.4	30.4
Percentage of villages electrified as on March 31, 1974	30 3	27.3
Per capita value added by manufacture in Rs. (1969)	78	48
Bank offices per lakh of population (December-end-1973)	5.3	3.0
Per capita income in Rs. (1970 71)	778	633

Agriculture. One significant feature of agriculture in Gujarat, is the shift in acreage from foodgrains to cash crops. The annual average acreage under the First Plan period (1951 56) under food crops was 55.8 lakh hectares, which came down to 47.9 lakh in the Third Plan period (1961 66). Conversely, the area under ground-nut increased to 21.3 lakh hectares in the Third Plan from a mere 8.5 lakh hectares in the Second Plan. The area under cotton also increased from 13.7 lakh hectares (1956–61) to 15.8 lakh in 1970 71. The production of foodgrains also increased, despite reduction in acreage, from 18.7 lakh tonnes in 1951 56 to 41.6 lakh tonnes in 1971 72.

Gujarat accounts for 20.8 per cent of the total area under cotton in India and 34.5 per cent of the total production. The corresponding figures for ground nut are 24.1 per cent and 30.3 per cent. Tobacco is another important cash crop. Gujarat produces about 14 per cent of the country's total output of tobacco.

Crops

Bajra is the most important crop. The State produces about one fourth of the country's total output. Its share in the State's total foodgrains production is more than one third. Important bajra producing districts of the State are: Banaskantha, Mehsana, Bhavnagar, Kaira, Amreli and Kutch.

Wheat. Next to bajra, wheat is the important cereal of the State. Its share in the total foodgrains outturn is about one fifth. The important wheat producing districts are Mehsana, Ahmedabad, Banaskantha, Junagadh and Rajkot.

Rice. The share of rice in the State's total foodgains production is about 14 per cent. Of this, Bulsar district alone produces one fourth Kaira, the Panchmahals, Surat and Ahmedabad are the other important rice producing districts in the State.

Jowar. The share of jowar in the total foodgrains production of the State is about 12 per cent. Surat, Baroda, Mehsana, Broach and Junagad districts are the most important jowar producing districts.

Maize. The share of this cereal in the total foodgrains production of the State is a little over 8 per cent; the Panchmahals district alone produces more than half. Sabarkantha district also produces more than one-fourth of the total maize crop in Gujarat.

Groundnut Gujarat State produces about one-fourth of total groundnut production in the country. Junagadh district alone produces a little over one-fifth of the total groundnut output in the State; while Jamnagar and Rajkot districts produce about 19 and 14 per cent respectively. Amreli, Bhavnagar and Sabarkantha are other important groundnut producing districts.

Cotton. The share of Gujarat in the production of raw cotton in the country is more than one-fourth. Also it produces some of the finest cotton varieties in the country. Baroda district produces about 18 per cent of the total cotton output. Broach and Surendranagar districts produce about 13 per cent each. The other important cotton producing districts are Ahmedabad, Rajkot and Sabarkantha.

Tobacco About one-fourth of the country's tobacco crop is produced in Gujarat. Within the State, Kaira district alone produces more than three-fourths of the total tobacco crop and Baroda district about 13 per cent.

Source: *Ratubhai Adani, Minister for Agriculture, Gujarat,* in *Economic Times Supplement,* July 28, 1972.

Table 177

Principal crops, Area & Production
1972 73

Crops	*Area (Hect.)*	*Production('000 tonnes)*	*Yeld per hectare Kg.*
Rice	405.2	147.9	365
Jowar	1014.6	212.9	210
Bajra	1715.6	844.1	692
Maize	250.8	255.8	1020
Small millets	137.7	67.3	489
Wheat	371.3	547.6	1475
Total pulses	379.2	112	295
Ground nut	1741.2	349.5	201
Casterseed	49.4	33.4	676
Sesamum	101.5	20.1	198
Rapseed & Mustard	43.3	18.9	436
Cotton	1789.9	1383.2	139
Tobacco	87.2	110.1	1263

Irrigation. The water resources of the State are estimated to be sufficient to irrigate only 2.14 million hectares or 31 per cent of the cultivable area.

About 83 per cent of the net irrigated area in the State is irrigated by wells. The share of canals—Government and private together is only about 14 per cent.

Table 178
Irrigation Projects

Name and Description	*Benefit area (in hectares)*
Banas. A dam across the river Banas near village Dantiwada in Banaskantha district.	44,517
Hathmathi. A dam across the river Hathmati, near the village of Fatehpur in Bhiloda Taluk of Sabarkanta district	37,604
Kakrapar. A pick-up weir across the river Tapi near Kakrapar about 80.87 km upstream of Surat.	227,543
Mahi Right Bank Canal (Stage I) A pick-up weir across the river Mahi near Wanakbori village, Balasinor Taluka of Kaira district.	186,162
Mahi Stage II (Kadana). A dam across the river Mahi at Kadana about 70.8 km upstream of the Wanakbori weir in Santrampur Taluka of Panchmahais district	286,554*
Narmada. A dam across river Narmada near Navagam village in Rajpipla taluka of Broach district	403,688
Shetrunji A dam across the river Shetrunji 10 4 km from Palitana town of Bhavnagar district	34,804
Ukai. A dam across the river Tapi near Ukai in Songadh Taluka of Surat district	152,400**

* Direct irrigation facility is only 16,544 hectares on the left bank canal. Firming up and extension of 270,000 hectares irrigation facility under Mahi right bank canal is envisaged.

** Indirect irrigation facility of 227,430 hectares is envisaged under Kakrapar weir.

Animal Husbandry Gujarat ranks among the few States of India that have a well-developed livestock industry. It has two high milk yield varieties of cows—Gir and Kankrej There are 5 cattle-breeding farms run by the State—2 for the Gir breed at Junagadh and Morvi, and 3 for Kankrej breed at Bhu, Sindhwadi and Thara There are 3 farms for sheep-breeding at Patan, Morvi and Nakhatrana One horse breeding farm for Kathi breed of horses is run at Junagadh and a camel breeding station at Dhotri in Kutch district A number of poultry farms are also established in the State, five of them at the State level at Junagadh, Markraba, Baroda, Surat, and Ahwa.

Forests. The total area of forests under the control of the Forests Department is 17,298 sq. km. or about 9 2 per cent of the total land area This is far below the optimum level of 33 per cent laid down in the National Forest Policy. Owing to the wide variations in climate and topography, forests in Gujarat cover a wide range from pure scrub forests in Kutch to big deciduous forests in Dang. There are three distinct forest zones in the States: (1) The area south of the Narmada consisting of moist and dry deciduous forests, with teak as the main species. (2) The area between Narmada and the extreme north (barring Saurashtra and Kutch) covering inferior deciduous forests with or without teak. (3) The area of Saurashtra and Kutch with inferior-quality teak forests, scrub-lands and man-grove forests.

Fisheries. One of nature's gifts to Gujarat is its long coast line extending over 1,600 km broken up by several bays, inlets, roadsteads, estuaries and marsh lands. Two important gulfs of India viz the Gulf of Kutch and Gulf of Cambay surround the Kathiawar peninsula The State has a span of over 12,000 sq km. of ocean area spread over through in-shore, offshore, and midwater regions available for fishing. Some of the richest fishing grounds in India are located off Gujarat State and most important species like pomfret Indian salmon, hilsa jew-fishes, prawns perches, Bombay ducks and tuna are found in large quantities in these waters The Gulf of Kutch also presents excellent con[illegible]ns for the growth and sustenance of p[illegible] oysters, window-pane oyster, chanks [illegible]ther shell fishes, turtles, sea-weeds [illegible] Similarly about 35,200 km of rivers and canals and 500,000 hectares of lakes, reservoirs, tanks, estuaries and brackish water swamps form a rich, potential source of inland fisheries.

The Halar-Okha coast of the State is famous for its shell and chank fisheries. Chank fishery is conducted departmentally and during 1967 68 as many as 16,424 chanks of different sizes were collected The entire lot was auctioned for an amount of Rs 68,730 During the year 1968-69, 12,589 chanks of different sizes were collected and were auctioned at an amount of Rs. 76,039.

Minerals. Gujarat is rich in minerals like salt, limestone, manganese, gypsum China clay, calcite, bauxite, etc. Kaira is rich in bauxite, and limestone, while calcite and limestone are mined in Jamnagar. Manganese is mined in Baroda and Panch Mahals, while fireclay is mined in Surendranagar district. Gypsum is available in all the districts of Saurashtra

The Geological Survey of India has located flourspar deposits in the amba Dongar area of Baroda district

Mineral Production (1966)—in '000 Rs. Bauxite 1,518; Calcite 42; Chinaclay 1,295; Dolomite 913; Fireclay 260; Limestone 11,041; Quartz and silica 136; Salt 35,343.

Power. In terms of per capita consumption of electricity, the State ranks fourth after Punjab, Maharashtra and T. Nadu. There has been a more than four-fold-increase in the installed capacity in the State from 142 MW in 1951 to 618 MW in 1968-69

Power Projects

Name and Location	*Installed Capacity*	*Areas Benefited*
Dhuvaran (Thermal) At Dhuvaran 96 km from Cambay in Kaira.	Stage I: four units of 63.5 MW each and Stage II: two units of 140 MW each-	Saurashtra, North and South Gujarat, Bhavnagar, Shahpur, Porbandar and Kutch.
Gas Turbines Schemes. Ankleshwar and Cambay	Two units of 27 MW each	Gujarat State.
Ukai (Thermal). On the down stream of Tapi Reservoir about 12 km from Fort Songad Rly Station.	Four units of 120 MW each	Industrial regions of Gujarat.

Industry. The major industries of the State are textile (including ginning and pressing of cotton), general and electrical engineering, vegetable oils, chemicals (including salt soda ash and cement . Ahmedabad, Surat, Jamnagar, Bhavanagar and Rajkot are the main centres of industrial development in the State and together account for 45.47 per cent of the total working factories and 56.38 per cent of the total workers employed

The discovery of oil and gas fields has thrown open a number of new opportunities. The setting up Koyali Refinery and a fertiliser complex near Baroda added a new dimension to the industrial economy of Gujarat. The setting up of a petro-chemical complex also near Baroda is the next phase of the development of oil-based industries in Gujarat. The chemical industry in the State has made a very rapid progress in the past ten years. The State holds a virtual monopoly of an important chemical like soda ash It is also an important producer of such basic chemicals as sulphuric acid and caustic soda.

Statistics. (1967) Number of factories 4,861; employment 4.16 lakhs

Table 180

	No. of factories	*Workers employed*
Textile	881	201353
Food except beverages	672	30888
Tobacco	224	7581
Non-metallic mineral products except petroleum and coal	448	28320
Processes allied to agriculture	452	39150
Machinery except electrical	593	25186
Transport equipment	180	17745
Others	1411	68434

Literacy and Education

In literacy, Gujarat ranks 10th among the States and territories of India, with 35 79 per cent (1971).

Table 181

School	*No.*	*Pupils*
Primary	21,900	3,500,000
Secondary	2,150	775,000
Higher Secondary	270	137,000
Others	3,300	150,000

There are Seven universities in the State: (1) M. S. University, Baroda; (2) Gujarat University, Ahmedabad; (3) Sardar Patel University, Vallabh Vidyanagar; (4) Gujarat Vidyapeeth, Ahmedabad; (5) Saurashtra University. Rajkot, (6) South Gujarat University, Surat; (7) Gujarat Ayurveda University, Jamnagar

Newspapers
Dailies)

Name	*Town*	*Language*	*Circulation **
Times of India	Ahmedabad & Bombay	English	205,007
Indian Express	,,	,,	108,127
Western Times	,,	,,	N. A
Gujaratmitra & Gujarat darpan	Surat	Gujarati	53,503
Janasatta	Ahmedabad	,,	51,793
Janasatta	Rajkot	,,	19,902
Jai Hind	Rajkot & Ahmedbad	,,	47,854
Loksatta	Baroda	,,	32,583
Phulchab	Rajkot	,,	49,591
Sandesh	Ahmedabad	,,	95,972

* Average circulation Jan-June 1974.
Source: ABC

Tourism

Places of tourist interest in the State are given below:

Ahmedabad is the second largest textile centre in India. Known as Karnavathi in ancient times, it was renamed Ahmedabad the City of Ahmed —in the 15th century. The city contains numerous monuments of the fifteenth and sixteenth centuries, most of them, the products of a synthesised Indo Islamic culture.

Baroda, the former capital of the Princely State of Baroda and new part of Gujarat State is some 250 miles north of Bombay. Places of interest are: Laxmi Vilas Palace, one of the most beautiful palaces in India, Old Nazar Bagh Palace, Museum and Public Park, Jubilee Garden, Kirti Mandir and Baro University.

Junagadh, situated below the famous Girnar Hill is one of the most ancient cities of India. The Gir Forest, where the Asian lion is found, is in Junagadh.

Porbandar is the birth-place of Mahatma Gandhi.

Prabhas Patan, is the site of the famous Somnath Temple which was destroyed and rebuilt many times over. Its last construction was begun in 1951.

Shatrunjaya Hill, near Palitana in Saurashtra is also known to Jains as Siddhagiri or Siddhachala or the Hill of the Perfected Ones. This place is sacred to the Shvetambara Jains and contains a number of temples, the most important of which is of Adishvara Bhagavan

HARYANA

Area:	44,222 sq km
Population:	10,036 808
Principal Language	Hindi
Capital.	Chandigarh
Governor:	B. N. Chakravarty
Chief Minister	Bansi Lal
Leg. Assembly Speaker:	Sarup Singh
Chief Justice:	Harbans Singh

The origin of the name *Haryana* is a matter of dispute Some hold that the name is derived from Harischandra, the legendary king, who made himself a martyr for truth. Others think that Haryana comes from 'hari' . meaning green. Still others trace the name to 'hari', meaning 'god'. Whatever may be the source, the name is very ancient and signified the area lying south of Shivalik hills, west of Yamuna river, north of the Aravallis and east of Sutlej river.

The modern State of Haryana, came into being on Nov. 1, 1966 as a result of the re organisation of the old Punjab State into two separate States. It was formed as a linguistic State, on the pattern of other States in India, the Hindi speaking areas of Punjab having been assigned to it.

The State is bounded by UP in the east, Punjab on the west, a part of H-Pradesh in the north and Rajasthan in the south. The Union Territory of Delhi, juts into Haryana and is encompassed by it on three sides

Physiography

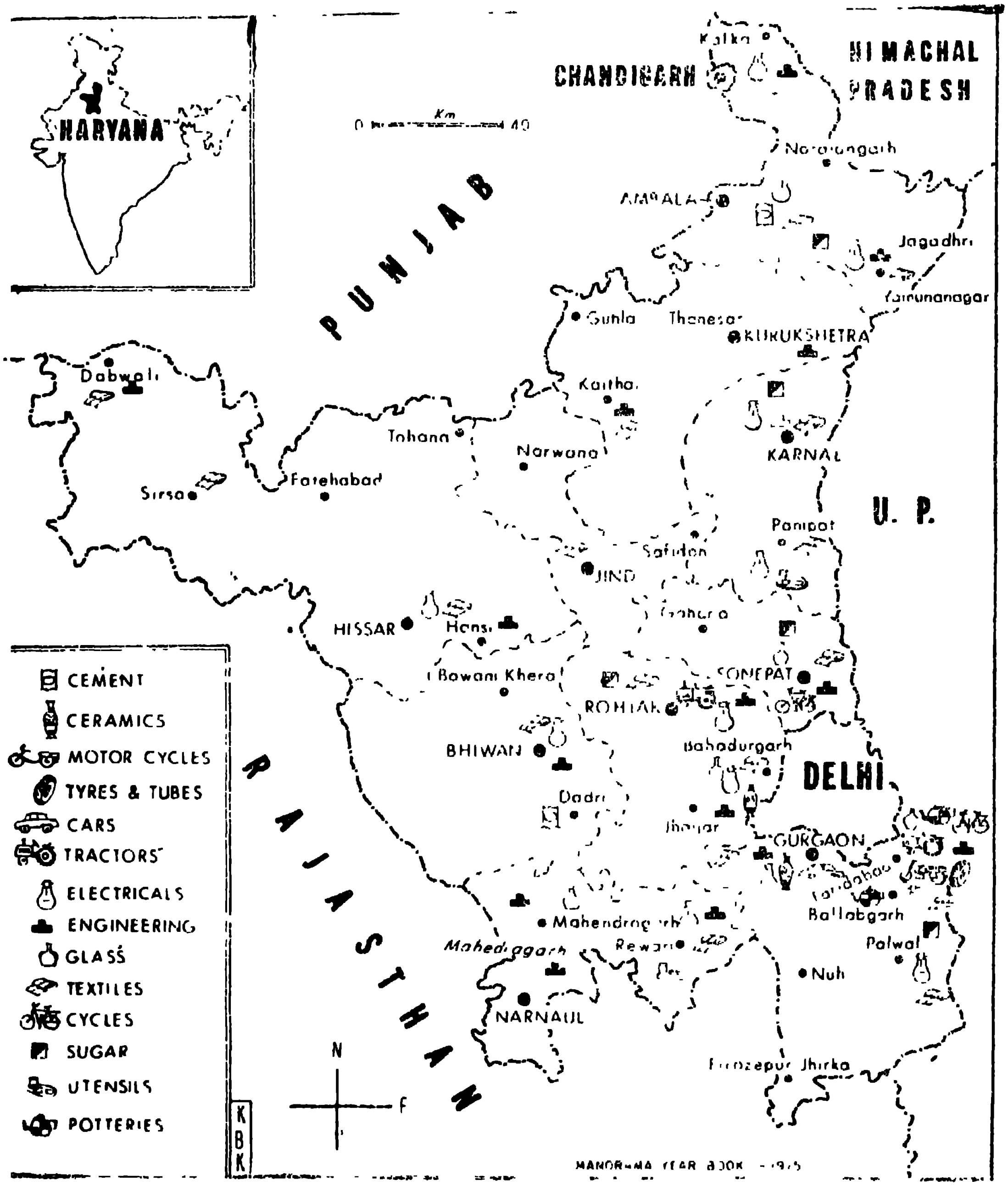
Haryana can be divided into two natural parts, the Sub Himalayan *terai* and the Indo Gangetic plain The plain is fertile and slopes from north to south with a height above the sea level averaging between 700 and 900 ft. The south west of Haryana is dry and sandy and barren. Haryana has no perennial rivers like its parent State Punjab or its eastern neighbour UP. In this respect, it has more affinity to its southern neighbour, Rajasthan. The only river which flows through Haryana is the Ghaggar, which passes through the northern fringes of the State. This river identified by some historians as the river Drishavaditi of Vedic fame is not perennial. Rainfall is meagre, particularly in the districts of Mahendragarh and Hissar Consequently Haryana is dangerously exposed to drought conditions and has to depend on man made wells and supply canals from the rivers of neighbouring State for its survival.

History

Haryana has a proud history going back to the Vedic age. The State was the home of the legendary Bharata dynasty, who has given the name Bharat to India Haryana is immortalised in the great epic Mahabharata. Kurukshetra, the scene of the epic battle between Kauravas and Pandavas is situated in Haryana The country continued to play a leading part in the history of India till the advent of the Muslims and the rise of Delhi as the Imperial Capital of India. Thereafter Haryana has functioned as an adjunct to Delhi and practically remained anonymous till the first war of Indian Independence in 1857.

The people of Haryana joined the ders of the Indian revolt against the ritish Government. When the rebellion as crushed and British administration -established, the Nawabs of Jhajjar and ahdurgarh, the Raja of Ballabhgarh and Rao Tula Ram of Rewari of the Haryana region were deprived of their territories. Their territories were either merged with the British territories or handed over o the rulers of Patiala, Nabha and Jind. Haryana was joined to the Punjab Province. A long period of deliberate neglect began

On the eve of Independence the region was a sandy barren expanse. It lagged far behind the Punjab region in development and economic activities. All these years the people had been struggling to have a State of their own. The form of the struggle, however depended upon the exigencies of the situation. After the introduction of the Montague-Chelmsford Reforms, representatives of Haryana including the late Chhotu Ram raised their voice in the Legislature in support of the demand for a Haryana State. They demanded an adequate share in development projects. Since politics in pre partition Punjab was dominated by Lahore and areas to the west of it, the demand was not considered sympathetically The region



however acquired importance after Independence on account of the division of Punjab. The influx of refugees from West Pakistan into the Haryana areas enriched the region to a great extent and speeded up the process of political growth. In the changed situation and circumstances it was quite natural that the demand for a separate State of Haryana should become acceptable.

The formation of the State of Haryana on November 1, 1966 marked the fulfilment of the long cherished desire of the people of this area

Administration

Legislature. The legislature consists of only one house the Legislative Assembly. The Assembly has 81 members.

The State is divided into 7 districts as below:

Table 183

	District	*Area sq km*	*Population (1971 census)*	*Head-quarters*
1	Ambala	3833	1098405	Ambala
2	Gurgaon	6146	1707369	Gurgaon
3	Hissar	13982	2132948	Hissar
4	Jind	2691	639610	Jind
5	Karnal	8068	1981303	Karnal
6	Mahendragarh	3459	691639	Narnaul
7	Rohtak	6043	1785534	Rohtak

Economic Structure

Haryana like all other States in India has an agricultural economy. But unlike the many other States its progress on the agricultural front in recent years has been marvellous

Table 184

Some Basic Facts

	Haryana	*India*
Percentage to working force (1971)		
(a) Cultivators	49.1	43.3
(b) Agricultural labourers	16.2	26 3
(c) Non-agricultural workers	34.7	30 4
Percentage of villages electrified as on March 31, 1974	100 0	27.3
Per capita value added by manufacture in Rs (1969)	49	48
Bank offices per lakh of population (December-end 1973)	3.8	3 0
Per capita income in Rs. (1970 71)	329	633

Agriculture. The major crops are wheat bajra, rice, maize, jowar, barley, gram, sugar-cane, rape and mustard and cotton. Among minor crops massar comes first with mash moong, sesamum, linseed, potatoes and groundnut following.

The key factor, that has contributed to Haryana's progress has been the Green Revolution. Within a period of four years. i e. from 1966-67 to 1970-71, the production of foodgrains in the State has gone up from 2.58 million tonnes to as much as 4.73 million tonnes. The production of the other major crop—sugarcane—has also recorded a significant increase from about 510,000 tonnes to 698,000 tonnes. The outputs of cotton and oil-seeds have been nearly stabilised around 350,000 bales and 600,000 tonnes, respectively. The most phenomenal increase in production amongst foodgrains has been registered in wheat—from 1.06 million tonnes in 1966 67 to nearly 2.30 million tonnes in 1970 71 The production of rice too has shown a marked improvement from 223,000 tonnes in 1966 67 to 450,000 tonnes in 1969 70

In 1970-71, Haryana contributed 4 43 per cent of the total food grains production in the country, though it forms only 1.35 per cent of the total geographical area of India. As regards individual crops, its contribution was 10.1 per cent, in the case of wheat, 15.3 per cent gram, 10.3 per cent bajra, 5.4 per cent sugar cane, 7 6 per cent cotton and 1.1 per cent oilseeds Haryana is now one of the four biggest producers of wheat, gram and bajra in India,

Table 185

Crops – Area & Production (1972–73)

Crop	*Area*	*Production ('000 Tonnes)*	*Yield per hect. Kg.*
Rice	292	406	1596
Jowar	188	55	293
Bajra	900	436	484
Miaze	113	127	1124
Wheat	1231	2160	1755
Barley	137	143	1044
Total pulses	1024	561.2	548
Rapeseed & Mustard	199	94	472
Cotton	265	442	300
Sugarcane (gur)	136	600	4412

Irrigation As the rainfall is insufficient and perennial rivers are few, Haryana has to bank heavily on artificial irrigation. The number of tube wells in the State has increased from a little over 50,000 in 1968-69 to more than 96,000 in 1970-71. The net area irrigated from all sources increased from 12.93 lakh hectares in 1967-68 to 15.32 lakh hectares in 1970-71.

Table 186
Irrigation Projects

Name and Description	*Benefit (area in hectares)*
Gurgaon Canal. Comprises of a branch-canal taking off at 8 km. below off-take of Agra Canal from Okhla headworks near Delhi and serves Haryana and Rajasthan States.	173,580
Western Jamuna Canal. The canal takes off from Tajewala headworks and serves Haryana State.	264.887

Animal Husbandry Haryana, in spite, of its small size is very rich in bovine wealth and produces about 1,610,000 tonnes of milk per annum or about 44.35 lakh litres per day.

Haryana breeds some of the best varieties of cows and buffaloes in India. The Haryana cow and the Murrah buffalo are known all over India as the finest milch animals The State is taking a keen interest in improving its cattle breed. The Hissar Livestock Farm, originally established by the British, has over 4,500 Haryana cows, 100 Tharkarpar cows, some 400 Sahiwal cows, over 400 Murrah buffaloes and several sheep, pigs and other domestic animals. The farm not only produces some 80,000 kilos milk per month but also concentrates on selective breeding and multiplication of species.

Forests. Haryana has very little forest area, barely 3 per cent of the State's total area. Except one district Ambala, which has 22.41 per cent forest area, all other districts have only nominal forests

Minerals. Haryana is very poor in mineral resources. Limestone, slate stone, clays and other minor minerals are however available

Power. Haryana has set a proud record in the development and supply of electric power. On Nov. 14, 1970 the State had provided electric connections to all its villages and thus achieved 100 per cent electrification of villages. This is a rare and commendable feat, when we remember that in March, 1969, only 1,464 villages out of 6,669 were electrified in Haryana.

Table 187
Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Delhi Thermal Station Delhi	Three units of 62.5 MW each	Delhi and Haryana
Faridabad Thermal Station Faridabad about 29 km from Delhi	Stage I: One unit of 15 MW. and Stage II: One unit of 55 MW.	In and around Faridabad in Haryana State.

Industries The proximity of Haryana to Delhi, and a good net work of roads and railways have enabled the State to achieve phenomenal progress in industry. There were over 40,000 small scale units, in 1970-71 compared to a mere 300, three or four years earlier The growth of large and medium sized industries is reflected in the number of industrial licenses issued to the State In 1970-71 alone, the number of licenses/letters of intent came to 109. Faridabad, Sonepet, Ballabhgarh, Bhiwani and other towns in the State are coming up as industrial centres of national importance.

The State has nearly a dozen cotton mills, several sugar factories, two paper mills, two cement factories and various unit producing spare parts for bicycles, sewing machines, etc. Ambala is famous for its glassware and scientific instruments Tyres are produced in Ballabhgarh and motor parts and motor cycles in Faridabad and Bahudurgarh.

Literacy and Education

Haryana has a low percentage of literacy, 26.69 as against the national average of 29.45. But the State is fast catching up in educational progress. Enrolment in primary schools has gone up from 8.23 lakhs in 1966-67 to 8.83 lakhs in 1970-71 and that in middle schools, from 2.47 lakhs to 3.36 lakhs The number of colleges has also increased from 46 in 1966-67 to 77 in 1970-71, with total admissions reaching 75,000 in 1971.

Haryana has only two universities, the Kurukshetra University at Kurukshetra and the Agricultural University at Hissar.

Table 188
Newspapers
(Dailies)

Name	*Language*	*Town*
Haryana Nirman	Hindi	Rohtak
Haryana Times	,,	Mahendragarh
Mewat	,,	Gurgaon
Sunehri Bharat	,,	Gurgaon

Tourism

The main tourist attraction in Haryana is Chandigarh, which is the capital of Punjab and Haryana It is a new city planned and built on modern lines. The city is situated near Kalka railway station of the Northern Railway

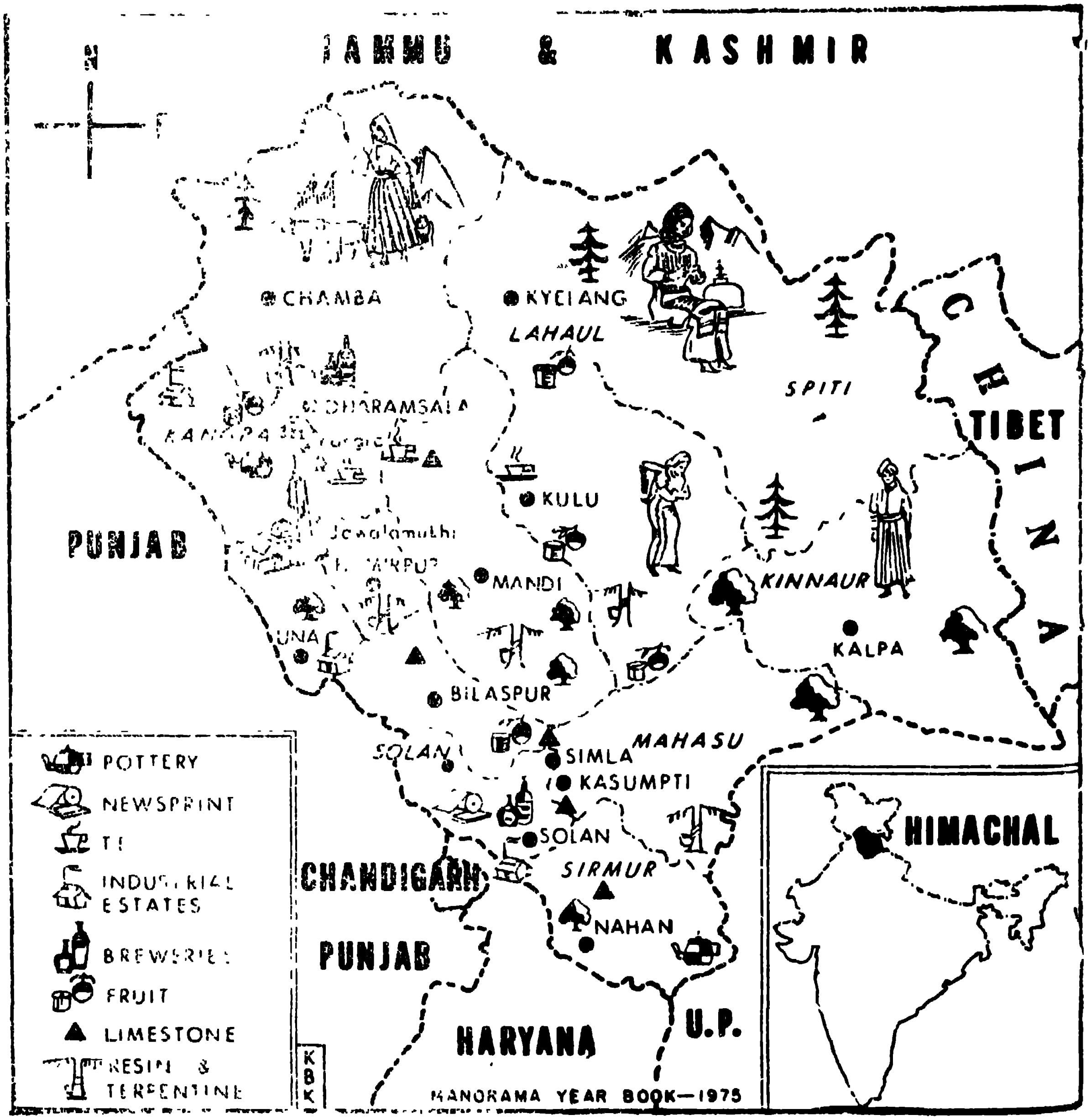
HIMACHAL PRADESH

Area:	55,673 sq km
Population:	3,460,434
Principal Language:	Hindi and Pahari
Capital:	Simla
Governor:	S. Chakravarti
Chief Minister.	Y. S. Parmer
Leg. Assembly Speaker:	Kuttar Chand Rana
Chief Justice:	R S. Pathak

Himachal Pradesh became a full-fledged State of the Indian Union on Jan. 25, 1971. With an area of 56,000 sq. km. it is larger than Punjab, Haryana or Kerala but in population it stands much below Kerala, Punjab or Haryana. Historically, the 18th state in the Union, H Pradesh is also the 18th in population (1971) but the 15th in area.

Physiography

H Pradesh is situated in the north west corner of India, right in the heart of the Himalayan ranges It is surrounded by Jammu and Kashmir in the north. UP in the south east, Haryana in the south



and Punjab in the west. In the east, it forms India's boundary with Tibet.

The country is almost entirely mountainous with altitudes ranging from 460 to 6,400 metres above the sea level. It has a deeply dissected topography, complex geological structures and a rich temperate flora in sub-tropical latitudes.

Physiographically, the territory can be divided into two regions–southern and northern The southern parts of H. Pradesh are almost as hot as the plains, while the northern region has a temperate summer and a winter with extreme cold and heavy snowfall. The districts of Simla and Sirmur have alluvium soil, while the remaining eight districts have forest and hill soils The normal rainfall of H. Pradesh is 152 3 cm (60 inches). Maximum rainfall is noticed in Kangra district and Simla.

Formation of the State

H. Pradesh was originally formed as a Centrally administered Territory on April 15, 1948 by the integration of some thirty Punjab Hill States. In 1951, it became a 'Part C' State under a Lt Governor, with a Legislative Assembly of 36 members and a cabinet of three ministers. In 1954, Bilaspur, another 'Part C' State was merged with H. Pradesh and the strength of the Assembly was raised to 41.

In 1956, the State's Re organisation Committee recommended the merger of H Pradesh with Punjab. But the people of H. Pradesh so stoutly opposed the merger that it was not put into effect, and H Pradesh continued to retain its separate identity. On Nov 1, 1956, it reverted to the status of a Union Territory under an Administrator, designated Lt Governor and its Legislative Assembly was abolished In its place a Territorial Council, was constituted in 1957. It had only limited powers and could administer only such subjects as were specifically transferred to it. Under The Constitution (Fourteenth Amendment) Act, 1962, Himachal Pradesh was declared a Union Territory, in 1963 with a Legislative Council and a Council of Ministers.

Till October 1966, H. Pradesh consisted of only six hill districts—Mahasa, Mandi, Chamba, Sirmur, Bilaspur and Kinnaur. In 1966 it was enlarged by the addition of some of the hilly areas of Punjab—Simla, Kangra, Kulu, Lahaul and Spiti districts and the Nalagarh teshil of Ambala district, and some parts of Hoshiarpur and Gurdaspur districts. With the integration of these Punjabi hill areas with H. Pradesh, the area of the State increaed to 56,019 sq. km and the population to 2,812,463 (1961).

H. Pradesh was re-organised into 10 districts and declared a State on Jan. 25, 1971 with Simla as capital. The strength of the State Legislative Assembly was fixed at 63, 60 elected members and three nominated. The State was alloted six seats in the Lok Sabha and three in the Rajya Sabha.

Rivers. H Pradesh is drained by a number of rivers, the most important of which are Chenab, Ravi, Beas, Sutlej and Yamuna. All these rivers are snow-fed and hence perennial. Besides, the natural reservoirs and the large drops available in the river courses provide immense potential for hydel power generation at a low cost

Administration

Legislature. There is only one house of legislature the Legislative Assembly consisting of 63 members.

The State is divided into 10 districts

Table 189

	*District**	*Area (sq. km.)*	*Population (1971 census)*	*Head-quarters*
1	Mahasu	5,652	440,118	Kasumpti
2	Mandi	4,018	515,180	Mandi
3	Chamba	8.195	255,233	Chamba
4	Sirmur	2,825	245,033	Nahan
5	Bilaspur	1,167	194,786	Bilaspur
6	Kinnaur	6,553	49,835	Kalpa
7	Simla	1,416	217,129	Simla
8	Kangra	8,397	1,327,211	Dharamasal
9	Kulu	5,455	192,371	Kulu
10	Lahaul & Spiti	12,015	23,538	Keylong

Economic Structure

H.Pradesh has shown the rest of India, what progress could be achieved if plans are drawn up realistically and are implemented with sincerity and determination

In point of per capita income, H. Pradesh has gone up the ladder to the 5th place among Indian States, from the lowest rungs, it occupied in the early fifties "From a backward hilly area, erroneously believed to be destined for poverty, within a quarter of a century, it has emerged as a pioneer in hill development".†

---

* A new district Shivalik was created and the district of Simla merged into Mahasu in 1971-72.

† Dr. Y. S. Parmar, Chief Minister.

Table 190

Some basic Facts

	H. P	*India*
Percentage to working force (1971)		
(a) Cultivators	70.7	43 3
(b) Agricultural labourers	4 1	26 3
(c) Non agricultural workers	25 2	30 4
Percentage of villages electrified as on March 31, 1974	32.9	27.3
Per capita value added by manufacture in Rs (1969)	18	48
Bank offices per lakh of population (December end 73)	4 4	3 0
Per capita income in Rs (1969-70)	563	597

Land use. The terrain being mountainous, H. Pradesh has little land left for agriculture More than 60 per cent of the land is either uncultivable or covered by forests.

Agriculture. In spite of the scarcity of cultivable land, agriculture, which by and large means horticulture, is the mainstay of the economy, with as much as 93 per cent of the population depending upon it. Maize and wheat are the major cereals under cultivation Maize thrives well on account of heavy rains but productivity of wheat is low. Potatoes and fruits, though technically food crops, are in fact the major cash crops of the state.

The following tables indicate the growth of agriculture and horticulture in the State:

Table 191

Index Numbers

(Base 1955-57 =100)

	Area		*Production*	
	Food grains	*All crops*	*Food-grains*	*All crops*
1966–67	97.3	98 7	107.5	109.0
1970–71	105.0	105.9	134.3	140.7

Table 192

Crops Area & Production

Crop	*Area (Hect.)*	*Production ('000 tonnes)*	*Yield per hectare kg.*
Rice	94.6	85.7	90.6
Maize	251.1	392.8	1564
Wheat	314 6	365	1164
Barley	40.6	35	862

Horticulture. H. Pradesh is gifted with a variety of agro-climatic conditions, due to different elevation zones, which make it an ideal region for growing many kinds of fruits. The State Government has exploited this natural advantage by steadily expanding the area under horticulture.

Table 193

	Area under Fruits (Hectares)	*Estimated Product (Lakh tonnes)*
1955 56	1214	0.07
1960–61	4512	0.19
1965 66	22257	0.37
1971 72	48987	1.78

Source: East. Econ. Aug. 18, 1972.

Animal Husbandry. More than 90 per cent of the people depend on the livestock industry along with their agricultural activities. According to the 1966* livestock census, the State has a livestock population of 44 lakhs. Cattle, sheep and goats constituted 85 per cent of the total livestock. Generally, the local cows of the State are small-sized and the milk yield is very poor. Measures are being taken to improve the quality and quantity of the animal stock.

Forests The forests cover an area of 21,585.27 sq. km which accounts for about 38.5 per cent of the total geographical area of this State. The national forest policy lays down that in hilly tracts like H. Pradesh, 60 per cent of the total geographical area should be under forests.

Most of the forests belong to the government. Private forests are very small in extent. Deodar, kail, chil, spruce, silver fir and neoza pine are the coniferous species growing in the forests. Neoza pine which produces edible nuts grows in Kinnaur district. These are the only forests of neoza in India. Among the broad leaved species, sal, ban oak, mohru oak, kharsu oak, walnut, maple, bird-cherry, horse chestnut, poplar, seemal, tun and shisham are the important species. The income from forests has grown from Rs. 63 43 lakhs in 1948-49 to over Rs. 7 crores in 1971-72.

Minerals. Important minerals of H Pradesh are salt, slate, gypsum, limestone and barytes Rock salt deposits are located in Mandi district and gypsum in Sirmur district. Vast deposits of slate are found in Mandi and Chamba districts Limestone is found in abundance in Bilaspur, Sirmur, Mandi and Mahasu districts. Sirmur and Bilaspur deposits of slate are of a quality suitable for cement industry.

Power. H. Pradesh has an aggregate hydel power potential of 8.5 million kW—which is roughly 20 per cent of the total resources of India The projects now on hand or under investigation promise to yield surplus power for the State. H. Pradesh has already electrified 2,600 villages out of a total of 10,438 villages in the State.

Industries. Industrially the State is backward, though there is vast and varied scope for development. As a result of the efforts made so far H. Pradesh has developed manufacturing capacity for a large number of sophisticated and highly skilled products. Today there are over 6,000 industrial concerns in the State Among major industries are Nahan Foundry, rosin and turpentine factories at Nahan and Bilaspur and the Mohan Meakin Breweries at Solan A cement factory and a paper plant are also being set up

Literacy and Education

H. Pradesh ranks 15th in point of literacy among the States and Territories of India with a percentage of 31.32. The State is making commendable efforts not only to push up literacy but also to further the progress of education at all levels

In 1969 70, 85.8 per cent children in the age group 6-11, 49 8 per cent between 11 and 14 years and 23 5 per cent between 14 and 17 years were attending schools.

No. of Schools 1970 71; Primary-3714, Middle-804, High and Secondary - 383, Colleges 11.

In 1972 the total number of Schools, Colleges, and Polytechnics exceeded 6,000.

The State has only one university, the Himachal Pradesh University at Simla, opened in 1970.

Tourism

H Pradesh is studded with a number of hill stations, which are refreshingly cool in summer. They offer to the tourist a quiet holiday, amidst a breath-taking scenery. Simla, Dalhousie, Dharmasala, Kulu, Manali, Kasauli, Solan, Chail and Kuffri are some of the famous hill stations of Himachal Pradesh.

H Pradesh abounds in wild life, among which are some rare species, like musk deer, ibex and snow leopard. The rivers offer ideal fishing grounds, for trout in Katrain, Rohrru and Barot and masheer, in Maryoga, Karganu and Dadahu

Kulu Valley lies to ths north of Simla and is situated in Punjab State. It is well-known alike for its scenic beauty and for its celebrated orchards.

JAMMU AND KASHMIR

Area:	222,236 sq. km.*
Population.	4,616,632†
Pincipal Language:	Kashmiri and Dogri
Capital:	Srinagar
Governor:	L K. Jha
Leg. Council Acting Chairman:	C L. Sharma
Leg. Assembly Speaker:	Abdul Gani Goni
Chief Minister:	Syed Mir Qasim
Chief Justice:	Syed Murtaza Jazal Ali

Physiography

The State is almost entirely mountainous, broken by stretches of valleys and dotted with mountain lakes It may be geographically divided into three distinct regions (1) Tibetan and semi-Tibetan tracts in the north, containing the districts of Ladakh and Gilgit, (2) the middle region of the happy valley of Kashmir and (3) the large level areas of Jammu in the south.

History

Jammu and Kashmir, known shortly as Kashmir has a history going back several centuries. It has been a long and chequered history, with many long periods of political servitude, and economic stagnation. Kashmir enters the arena of Indian history with the Mauryas The Mauryan Empire, in the days of Asoka extended from Afghanistan in the northwest to Bengal in the east and Deccan in the south. Asoka founded the original city of Srinagar on the site of the present village of Pandrethan, about three miles upstream from Srinagar, the present capital.

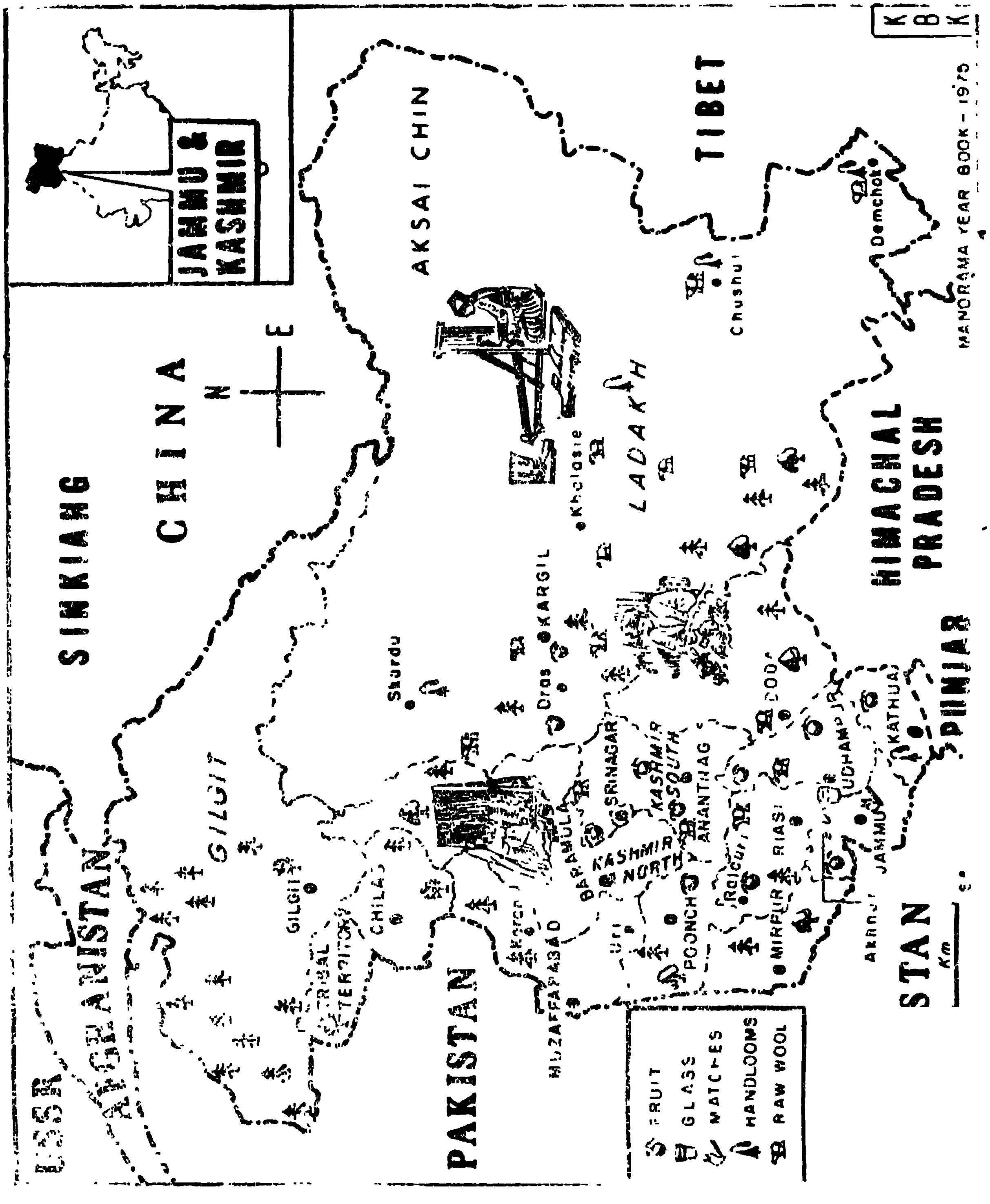
Under Kanishka, the Kushan Emperor of India, Kashmir became a focus of various cultural activities. A historic conference on Buddhist faith was held in Kashmir under his auspices.

Of the 222,236 sq. km. total area, nearly 84,112 sq. km. are under the illegal occupation of Pakistan.

Excluding the population of areas under the illegal occupation of Pakistan.

Kashmir lighted up in history during the reigns of some benevolent and farseeing monarchs from the 8th century A D to the 15th century. Lalitaditya (A D 724-760) was the first of the great kings who ruled over Kashmir. He was a Hindu warrior king, but was tolerant towards all religions and all shades of opinion. He patronised men of letters and supported many *viharas* (monasteries) which became seats of learning. He constructed the famous Martand temple, whose ruins testify to the splendour and massiveness of his conceptions.

Another illustrious king was Avantivarman (A D 855-883). It was during his time that engineering constructions were put up to prevent floods in the valley of Kashmir, across the narrow gorge at Baramulla. This engineering feat



was achieved by a Kashmiri engineer, named Suya, after whom is named the present town of Sopore The town of Avantipura named after the King has survived to the present day.

The school of Saivism, which was later to rock Hindu religion for many centuries, was founded in Kashmir by Vasogupta, who wrote 'Spanda Karika' He was followed by Kallata Bhat, who wrote 'Spanda Vrithi' in the ninth century Soon after came Somananda, with his profound treatise 'Shiva Drishti' Somananda was followed by other illustrious thinkers and writers like Uptaldeva and Abhinava Gupta (10th century).

Hindu rule passed into decay by the beginning of the 11th century AD and the Kashmir Valley passed into the hands of Muslim rulers The most notable among them was Sultan Zain Ul Abdin (1420 70) who is otherwise known as Badshah.

Sultan Zain Ul Abdin was a lover of arts and crafts He introduced the handicrafts for which Kashmir has since become famous—carpet making, papier mache, shawl-making, silk and embroidery. He dug the Mar Canal which connects the Dal Lake with Anchan Lake. He shifted the City of Srinagar towards the Mar Canal area which was drier and flood free.

Akbar conquered Kashmir in 1586. His successors Jehangir and Shah Jehan built tately mansions, planted chinars and laid out gardens around the Dal Lake and elsewhere. The Mughal Gardens in the State testify to the artistic tastes of the Mughal Emperors.

After the Mughals, came the Afghans. In 1750 Ahmed Shah Abdali occupied Kashmir. From 1819 to 1846 the Sikhs ruled the country In 1820, Ranjit Singh, the Sikh ruler made over the territory of Jammu to Gulab Singh, the Dogra ruler. By the treaty of Amritsar in 1846, Jammu and Kashmir became part of Gulab Singh's territory, under the suzerainty of the British.

With the lapse of British sovereignty on August 15, 1947, India and Pakistan became free dominions and the Maharaja of Kashmir, an independent monarch. The Maharaja entered into a standstill agreement with India and Pakistan to maintain the *status quo* It was admittedly a transitory step pending negotiations for accession. Pakistan, however imposed a blockade on Kashmir in order to pressurise the Maharaja into signing the Instrument of Accession in its favour This was followed by a massive tribal attack supported by the Pakistan army. The Pakistani invasion brought to the fore the question of Accession, which was settled on October 26, 1947, by the Maharaja signing the Instrument of Accession in favour of India.

On accession to India, the Indian army intervened in Kashmir and with the support of the people drove out the Pakistanis from the major portion occupied by them. The cease-fire by the UN however made it impossible to beat back the Pakistanis from the entire area and thus a part of the State's territory has since remained under the illegal occupation of Pakistan.

With Pakistani aggression temporarily halted, Jammu and Kashmir set about to put its house in order.

A Constituent Assembly was set up in 1951 to frame a Constitution for the State. Elections to the Assembly were held on the basis of universal adult franchise The Assembly took historic decisions in ratifying the accession of the State with India, abolishing hereditary rulership in the State and ratifying the transfer of land to tillers without payment of compensation. The monarchical order was formally terminated in November 1952 in pursuance of the Assembly's decision, and the first Head of the State Sadar i-Riyasat) was elected. These radical measures were taken with the full support of the Government of India and the Indian Parliament

Kashmir and the Indian Union Kashmir. occupies a privileged position among Indian States as regards its relations with the Indian Union. Art. 370 of the Indian Constitution limits the Parliament's powers (over Kashmir) to three subjects-defence,foreign affairs and communications. Other subjects from the Union and Concurrent Lists may be made applicable to Kashmir with the approval of the State (Kashmir).

Administration

Legislature. The State legislature consists of two houses (1) the Legislative Assembly with 75 members, and (2) the Legislative Council with 36 members, 8 of whom are nominated and the rest elected.

The State is divided into 10 districts.

Table 194

Districts	*Area (sq. km)*	*Population (1971 census)*	*Head-quarters*
1 Anantnag (Kashmir South)	5382	832280	Anantnag
2 Baramula (Kashmir North)	7458	775724	Baramula
3 Doda	11691	342220	Doda
4 Jammu	3165	731743	Jammu
5 Kathua	2651	274671	Kathua
6 Ladakh	95876*	105291	Leh
7 Poonch	1658	170787	Poonch
8 Rajouri	2681	217373	Rajouri
9 Srinagar	3013	827697	Srinagar
10 Udhampur	4549	338846	Udhampur

* Includes area under illegal occupation of China.

Economic Structure

Land Reforms. Kashmir was one of the earliest States to bring about radical reforms in land laws· A start was made in the direction of land reforms with the resumption of the existing feudal institutions, such as *Jagirs, Muafis* and *Mukkararies* in the year 1948. As many as 395 *Jagirs* and' *Muafis*, 2,347 Mukkararies were liquidated. 4,250 acres of land granted as a privilege to Jagirdars for residential and other purposes were released and transferred to cultivators of the land.

Table 195

Some Basic Facts

	Jammu and Kashmir	*India*
Percentage to working force (1971)		
(a) Cultivators	64.8	43.3
(b) Agricultural labourers	3.1	26.3
(c) Non-agricultural workers	32.1	30.4
Percentage of villages electrified as on December 31, '73	22.9	26.2
Per capita value added by manufacture in Rs (1969)	5	48
Bank offices per lakh of population (December end 1973)	3.4	3.0
Per capita income in Rs. (1968 69)	513	549

In October, 1950 the Big Landed Estates (Abolition) Act was passed. A ceiling of 22.75 acres on all proprietory holdings was put under the Act. The surplus land above the ceiling was transferred to the actual tillers who became the owners of the land As many as 9,000 land owners were expropriated without compensation from the surplus land aggregating to 4.5 lakh acres. Out of this about 2.3 lakh acres were transferred to the cultivators in ownership right, free of any encumbrance.

Agriculture is the main occupation of the people. About 80 per cent of the population depends on it. Paddy, wheat, maize, jowar and bajra are grown in the State. The total area under crops is estimated at 2 12 million acres. Agricultural earnings contribute 30 per cent of the State income.

The production of foodgrains has practically doubled during the last decade from 580,000 quintals in 1960-61 to 1.05 million quintals in 1970 71.

Table 196

Crops– Area & Production 1972-73

Crop	*Area (Hectare)*	*Production ('000 tonnes)*	*Yield per hectare Kg.*
Rice	230.3	342.7	1488
Maize	276.3	380.3	1376
Wheat	179.7	168	935

Horticulture. Kashmir has always been reputed for its fruits In recent years as a result of the all round economic and technological advancement, the fruit industry in the State has received a great fillip leading to greater production and exports

As a result of the tremendous increase in fruit production, the exports have been gradually rising. The export figures have risen from 23,064 tonnes in 1960-61 to over 100,000 tonnes in 1970-71.

Irrigation. The net irrigated area during the year 1960 61 was 16.32 lakh acres. This has increased to 16.68 lakh acres in 1965-66. The Kathua canal has been completed and it is expected to irrigate 28,000 acres of land. The government have drawn up a master plan for flood-control in the valley. Work on outfall channel from Wular Lake to Baramulla is in progress. Two dredgers have been commissioned to work at Sopore for dredging work. A large number of protection bunds have been constructed in the Jammu province at a cost of Rs. 14.70 lakhs.

Tawi Lift Irrigation. An intake structure on the left bank of river Tawi near

Bahu fort about 56.3 km. from Jammu benefits an area of 264,887 hectares.

Animal Husbandry. The 1961 livestock census showed 1,831,067 cattle, 401,194 buffaloes, 1,161,248 sheep, 577,415 goats, 64,152 horses and 1,608,422 poultry.

Forestry. Next to agriculture, forests constitute the most important sector of the State's economy. Forests cover over eight thousand sq. miles in the State. Of this 2,887 sq miles are available for valuable timber exploitation.

A rich variety of spruce, and stately trees, such as pine, fir, birch, bazel, wild oak, maple, beech etc. fill the forests

The graceful birch trees grow at high altitudes. They are found in Lidder valley, Kolaohai, Guarais and the nearby areas. These areas and the Jhelum Valley, Sonamarg, Gulmarg, Kishtwar and Bhaderwah are rich in pine, fir and deodar. The best varieties of pine and deodar are found in the dense forests of Kishtwar, Bhaderwah and the Lolab Valley.

These forests are a regular haunt of overs of sport and adventure who can nd ibex, musk deer, wolf, fox, red bear, black bear, barsingha, pig etc A variety of winged game, such as duck, goose, chakor, monal pheasant, partridge and snipe are found in low forests, on swamps and banks of the lakes.

The revenue from forests has increased from Rs. 4 07 crores in 1966–67 to Rs 4.35 crores in 1968 69. An all-time record has been touched in 1969-70 when the revenue rose to Rs. 5.20 crores During 1970-71 the revenue from forests was expected to be still higher, in spite of the drought conditions which had handicapped the floatation of timber and the slump in the timber market.

Minerals. Coal and lignite are the chief minerals of the State. Bauxite, iron ore, copper ore, graphite, nickel, manganese, gold and gypsum are found in small quantities all over the State Kashmir holds a virtual monopoly of sapphires, which are mined from the famous sapphire mines of Soomjam (Sumsam) in Udhampur.

Power. Kashmir posseses considerable hydel potential totalling according to the N. C. A E. R. Survey, 3,590 MW. (at 60 percent load factor) equal to 8.6 per cent of the total potential of India. The hydel projects completed so far, constitute only 0.75 per cent of the available potential.

Table 197

Power Projects

Name and Location	*Installed Capacity*	*Areas Benefited*
Chenani (Hydro) Across the river Tawi 6.44 km upstream of Chenani village in Jammu district.	5 units of 4.66 MW each	Jammu District
Kalakot (Thermal). At Kalakot about 20 km from Jammu	Three units of 7,500 kW each	Jammu district
Lower Jhelum (Hydro). A weir across the river Jhelum at Jainpur village in Baramulla district and a power house at about 72 5 km. west of Srinagar.	Seven units of 16 MW each	Kashmir Valley
Salal H. E. Scheme. The high dam (113 m. high) across the river Chenab near Madhopur.	Stage I: Three units of 90 MW each. Stage II: Three units of 90 MW.	Kashmir Valley
Sindh H. E. Project. A weir across the river Sindh about 28 km upstream of the existing Ganderbal Hydro Power Station and a power house at Sumbal about 48 km north east of Srinagar.	Two units of 11 MW. each.	Kashmir Valley

Industry. Kashmir is one of the industrially backward states of India. The contribution of manufacturing industry to the State income, is somewhere around 9 per cent, which is much lower than the national average of 14 per cent. Not only is the total industrial activity of a low order but structurally it is dominated by insufficient and low income generating household industries.

Woollen industry is by far the chief industry of the State, employing about 300,000 people. Sericulture, the next important industry employs about a million people. Handicrafts include calico printing khadi and sculpture

The large scale industrial units in the State have been started mainly on the initiative of the State government. Out of the 25 medium and large scale units 19 fall in the public sector. Of these, 18 units are being administered by the two State Corporations, namely the Jammu and Kashmir Minerals Ltd and the Jammu and Kashmir Industries Ltd. The large scale industrial units include: Spinning Mills, Silk Weaving Factories, Woollen Mills, Joinery Mills, Rosin and Turpentine Factory, Match Factory, Brick and Tile Factory, Cement Factory, Prestressed Concrete Factory, Briquetting Plant, etc.

The Sericulture Industry annually distributes about 28,000 ounces of silk worm seeds to the rearers in the Kashmir Province and 11,000 ozs. in the Jammu Province for production of industrial cocoons for manufacture of silk yarn. The industry harvests 22,000 to 23,000 maunds of cocoons and produces about 60,000 kg. of raw silk annually.

There has been good progress in the small scale industries sector. Over 300 new units have come into being in the last two years. The Scheme for providing special assistance to technically qualified persons for the setting up of small scale units has met with good response. Five such units have gone into production and 14 others are in various stages of implementation.

Literacy and Education

Kashmir is far behind in literacy with a percentage of 18.58 compared to the national average of 29.45 per cent. Considerable progress in education has however been made in the last two decades.

Number of Schools

	1950-51	*1971-72*
Primary Schools	1,115	5,363
Middle Schools	139	1,406
High Schools	55	577

Enrolment in the age group 6 to 11 has gone up from 16.79 per cent in 1950-51 to 66.38 per cent in 1971-72.

The State has two universities, the University of Jammu and the University of Kashmir.

NewsPapers

(Dailies)

Leading dailies (English) published from Jammu: Excelsior, Kashmir Times

Urdu published from Srinagar Imarat, Sandesh and Ujalla.

(Urdu) published from Srinagar: Khidmat, Aftab, Hamdard, Naya Sansar, Zamindar, Chirar, Wular and Srinagar Times.

In addition, 56 weeklies are also being published from the State

Tourism

Tourism is Kashmir's prize asset. Unlike other tourist places, which normally offer a single attraction, Kashmir offers a wide variety of interests to the visitor who can plan fairly long holiday without feeling boredom or monotony. Tourism has been growing fast in Kashmir from a mere 37,000 in 1945, the number of tourists has increased to 120,000 in 1970.

The chief tourist attractions are Mughal Gardens like Shalimar, Chashmashahi, Acchabal and Nishat, lakes like Dal Lake, Wular Lake and Anchar Lake, and places of historical importance like Martand Temple, Pandarinathan Temple, Avanti Pura, Pari Mahal and Sankaracharya Hill.

KARNATAKA

Area:	191,773 sq. km.
Population:	29,299,014
Principal Language	Kannda
Capital:	Bangalore
Governor:	Mohan Lal Sukhadia
Chief Minister:	D. Devraj Urs
Leg. Council Chairman:	S D. Gaonkar
Leg Assembly Speaker:	Smt K. S. Nagarathnamma
Chief Justice:	G K Govinda Bhat

On Nov. 1, 1973 the Mysore State changed its name to Karnataka, under the Mysore State (Alteration of Name Act, 1973. The change is much more than a change in nomenclature It is the revival of a great image of a region, ch under the name of Karnataka, had attained glorious heights in history

Physiography

Karnataka is situated on the western dge of the Deccan plateau and has for neighbours Maharashtra and Goa on e north, Andhra Pradesh on the east nd T Nadu and Kerala on the south On the west, it opens out on the Arabian Sea.

Physiographically the State can be divided into four regions: (1) The Coastal Region, (2) the Malnad, (3) the Northern lains and (4) the Southern plains.

The coastal region, consisting of the western portions of North Kanara and South Kanara districts, is about 240 km wide between the Arabian Sea and the Western Ghats. The annual rainfall here more than 250 cm (100 inches). The coastal plateau is covered with alluvium deposited by the short, turbulent rivers. The Malnad is the area lying east of the Western Ghats. It is about 150 metres above the sea level and consists of ranges hills with an average height of 900 metres. It is characteristically a region of heavy rainfall (250 cm. a year) The climate is generally hot and wet The area practically covered with thick evergreen rests.

The northern plain consists of the districts of Bidar, Bijapur, Raichur, Gulbarga and the eastern portions of Dharwar and Belgaum. The range of annual rainfall here is between 50 and 75 cm The southern plain covers Bangalore, Kolar, Mandya, Tumkur and the eastern part of the Mysore district. This region presents a beautiful landscape, mainly because of the different types of vegetation that the land supports.

Rivers. The two important river systems of Karnataka State are the Krishna and its tributaries (Bhima, Ghataprabha, Malaprabha, Tungabhadra and Vedavati) in the north and Kaveri and its tributaries (Hemavati, Shimsha, Arkavati, Lakshmana Thirtha and Kabini) in the south.

Both these rivers flow eastward and fall into the Bay of Bengal, Krishna passing through Andhra Pradesh and Kaveri traversing Tamil Nadu.

A number of smaller rivers, flow westward into the Arabian Sea. Of these Sharavati. Kalinadi and Netravati are important to Karnataka They are being tapped for hydro power.

As most of these rivers pass through other states, notably Andhra Pradesh, Kerala and T Nadu, there are frequent disputes as to water rights, between Karnataka and the other states

History

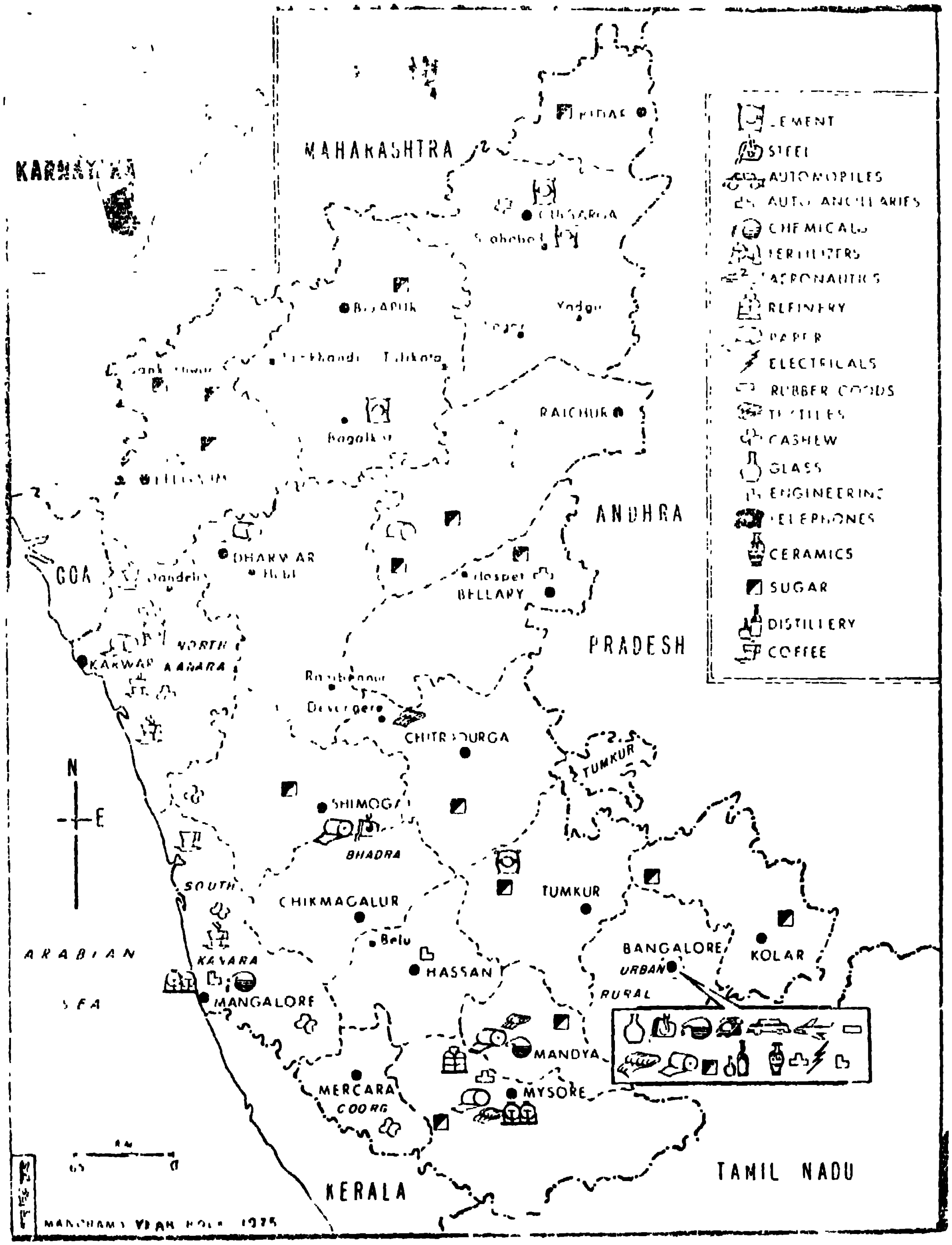
The name Karnataka is derived from Karunadu, literally, lofty land. As much of Karnataka is high plateau land, the name is entirely justified The history of Karnataka, goes back to the dim days of the epics. The capital of Bali and Sugreeva, 'monkey kings' of the Ramayana is said to have been Hampi in Bellary district Vatapi associated with the Sage Agastya is obviously Badami in Bijapur district

In the 4th century B.C. Karnataka was part of the great Mauryan Empire Siwamagiri (Kanakagiri in Raichur district) is said to have been the southern capital of the Mauryas. About 30 BC. a local dynasty Satavahana, came to power in Karnataka. The Satavahana Empire lasted nearly 300 years. With the disintegration of the Satavahana dynasty, the Kadambas came to power in the north, and the Gangas in the south The gigantic monolithic statue of Gomateswara at Sravanabelagola, is considered to be a magnificent monument of the Ganga period.

By the beginning of the sixth century A.D. the Chalukyas established a new empire, in Karnataka. Pulikesan II carried Chalukyan arms into north India and defeated Harsha, the great emperor of the north. The Chalukyas were followed by the Rashtrakutas, who were dislodged by the Chalukyas, who again became the overlords of Karnataka. With the final disruption of the Chalukyan empire, the Yadavas of Devagiri and the Hoysalas of Dwarasamudra, divided Karnataka between them.

In the 14th century, the great Vijayanagar empire was established. The Vijayanagar kings carried their arms far and wide and for about 200 years, Karnataka experienced days of prosperity and glory. A confederation of the Muslim sultans of the Deccan, destroyed the Vijayanagar empire in 1565 (Battle of Talikota). The vast ruins at Hampi, near Hospet remain today as the sombre reminders of the Vijayanagar glory.

In 1399 AD Yaduraya the ruler of a small principality, Mysore, founded the Wodeyar dynasty. Raja Wodeyar



(A D 1578-1612) enlarged the principality into a mighty kingdom, with Srirangapatanam as his capital. The Wodeyars were overthrown by Hyder Ali, the intrepid Muslim general of Mysore. With the defeat of Tipu, the son of Hyder Ali, by the British, the Wodeyars were restored to power as a feudatory of the British.

During British rule, the Karnataka area was distributed among the Princely States of Mysore, Hyderabad, and the British provinces of Bombay and Madras and the small principality of Coorg

Formation of the State Karnataka is the seventh largest State in India and stands eighth in point of population. The formation of the present State represents the fulfilment of the age old aspirations of Kannada-speaking people to come together in a single State. The old Kingdom of Mysore formed the nucleus of this new State. Under the State's Re organisation Act, the Kingdom of Mysore gathered around itself in 1956 the districts of Kanara, Bijapur, Dharwar and the major portion of Belgaum district in the old Bombay State, the major portion of Gulbarga, Raichur and Bidar districts, from the princely State of Hyderabad, the South Kanara district (excluding Kasargod Taluk and Kollegal taluk in Coimbatore district) from the old Madras State and the whole of the 'Part C' State of Coorg.

The princely State of Mysore comprised the area that was restored to the original rulers, by the British after the defeat and death of Tipu in 1799. The rulers of Mysore, appear to have imbibed the great traditions of their ancient predecessors, the Cholas, the Chalukyas, and the Vijayanagar Empire. Fairly let alone by the British and guided by able administrators under responsible rulers, the State pioneered economic development on a planned basis. She led India in irrigation and power projects and in the field of public sector industrial undertakings. Economically the State was in many ways well ahead of the rest of the country at the dawn of Independence. However, it had several handicaps, in such matters as lack of sea-board and ports of its own, and inadequate communication links in terms of railways. With the States Reorganisation in 1956, the State more than doubled its size and got a 150-mile sea coast as well as the rich forest wealth of Coorg and north Kanara and the rich mineral deposit areas of Bellary.

Administration

The Legislature is made up of two houses—the Legislative Assembly of 216 members and the Legislative Council of 93 members.

State is divided into 19 districts.

Table 198

District	*Area (sq. km)*	*Population (1971 census)*	*Head quarters*
1 Bangalore	8003	3365515	Bangalore
2 Belgaum	13410	2423342	Belgaum
3 Bellary	9898	1122686	Bellary
4 Bijapur	17056	1985591	Bijapur
5 Bidar	5451	824059	Bidar
6 Chikmagalur	7191	736647	Chikmagalur
7 Chitradurga	10852	1397456	Chitradurga
8 Coorg	4104	378291	Mercara
9 Dharwar	13749	2342213	Dharwar
10 Gulbarga	16224	1739220	Gulbarga
11 Hassan	6823	1102370	Hassan
12 Kolar	8223	1516646	Kolar
13 Mandya	4958	1154374	Mandya
14 Mysore	11947	2077238	Mysore
15 North Kanara	10276	849105	Karwar
16 Raichur	14005	1415740	Raichur
17 Shimoga	10548	1301485	Shimoga
18 South Canara	8441	1939315	Mangalore
19 Tumkur	10606	1627721	Tumkur

Economic Structure

Land Utilisation. The total geographical area of the State is 19,046 thousand hectares Of this, net area sown is 58 per cent (10,988 thousand hectares). Compared with the corresponding all India figure of 45 per cent, this is quite satisfactory. The forests occupy 2895 thousand hectares, that is 15 per cent of the geographical area The remaining 27 per cent of land is classified under fallow lands, area not available for cultivation and other uncultivable land.

Table 199

Some Basic Facts

	Karnataka	*India*
Percentage to working force (1971)		
(a) Cultivators	40.0	43.3
(b) Agricultural labourers	26.7	26.3
(c) Non Agricultural workers	33.3	30.4
Percentage of villages electrified as on March 31, 1974	48.0	27.3
Per capita value added by manufacture in Rs. (1969)	47	48
Bank offices per lakh of population (December-end 1973)	5.4	3.0
Per capita income in Rs. (1970-71)	540	633

Major Crops. Rice is the major food crop of the State The share of this State in the total rice output of the country is 5 per cent The districts of Mandya, North Kanara, Shimoga and South Kanara together produce half of the State's rice. The second important food crop of the State is jowar which is mainly cultivated in the districts of Bijapur, Gulbarga, Belgaum, Dharwar and Raichur The third important food crop of the State is ragi About 30 per cent of the country's ragi is produced in the State

Among cash crops, sugar cane, groundnut, castor seed, safflower and cotton are important. Karnataka enjoys a virtual monopoly in coffee cultivation and accounts for over 70 per cent of total production of coffee in the country. The production of foodgrains during 1972 73 was 45.84 lakh tonnes, of grams and pulses, 3.33 lakh tonnes, of sugar cane 90.14 lakh, of oil seeds 5.54 lakh tonnes and of cotton 5.72 lakh bales

Table 200
Principal Crops 1972-73

Crops	*Area ('000 Hect.)*	*Prod. '000 tonnes'*	*Yield per hectare kg.*
Rice	1158	1889	1717
Jowar	2045	1195	615
Bajra	265.6	79 7	300
Maize	119 7	424 5	3546
Ragi	989	855	911
S Millets	369.1	106.6	290
Wheat	297	115	408
Total pulses	1110	333	226
Groundnut	772	49 9	680
Castorseed	310.10	210.17	678
Safflower	110 7	12.9	117
Cotton	963	572	113
Sugarcane gur)	104	9,014	92
Coriander	16.1	1.6	
Cardamom	23 6	1.2	
Tobacco	37	20.3	549
Coconut	131.8	637 7	4838

Source: Bureau of Economics & Statistics Ministry of Agriculture.

Irrigation Major sources of irrigation are tanks (27 per cent), government canals (33 per cent) and wells (32 per) cent. The government canals are the principal sources of irrigation in Bellary, Mandya, Mysore and Raichur districts Tank irrigation is more prominent in the districts of Bangalore, Chickmagalur, Dharwar, Hassan, Kolar, North Kanara, Shimoga and Tumkur. Wells are the principal sources of irrigation in Belgaum, Bijapur, Chitradurga and Gulbarga districts

Table 201
Irrigation Projects

Name and Description	*Benefit (area in hectares*)
Bhadra Dam across the river Bhadra near Lakkavali village	99 015
Ghataprabha. A weir across the river Ghataprabha near Dhupdal in Belgaum district and a dam near Hidkal village about 19 km upstream of the Dhupdal weir	11,700
Hemavathy, Mysore	40,700
Harangi, Coorg	30 52[illegible]
Kabini Dam across the Kabini river near village Bidarahalli in Heggadadevanakote taluka	50,992
Karanja Bidar	27,269
Malaprabha Dam on the river Malaprabha at Peacock Gorge near Manoli village.	121,4[illegible]
Tungabhadra A dam across the river Tungabhadra at Mallapur village in Bellary district about 4.8 km. from Hospet	272,10[illegible]
Upper Krishna The dams across the Almatti in Bagewadi taluka and the other at Siddapur in Muddebehal taluka in Bijapur district.	242,8[illegible]

Animal Husbandry. Karnataka has a total livestok population of 22 million animals, comprising 10.1 million bovines, 3.2 million buffaloes, 3 8 million goats and 4 8 million sheep. The estimated availability of raw hides and skins is of the order of 12.5 lakh pieces of hide and 29.6 lakh pieces of skins, which form 5.3 per cent and 6.3 per cent of hides and skins respectively of the total availability in the country.

Forests occupy 18 per cent of the geographical area of the State The concentration of forests is found mostly in the hilly regions of the western districts, viz, Belgaum, North Kanara, Shimoga, Chikmagalur, South Kanara, Coorg and Mysore districts. The most heavily forested area of the State is the North Kanara District (81 per cent). In particular, this State has practically a monopoly in sandalwood.

The forests yield a variety of timbers like teak, rosewood, Sandalwood and several species of soft wood and bamboo. Among the minor forest produce, mention may be made of myrobalans, wattle-bark, rattan cane, ivory, honey etc. Of particular significance to the State is sandalwood oil which is extensively used in soaps, chemicals and cosmetic industries.

Fisheries. Karnataka is the fourth important maritime State in India with more than 150 miles of coast line and a fishable area of about 10,000 square miles. The annual marine fish landings are estimated at 1,67,135 tonnes which forms 10 per cent of the total fish landings in the country. The main varieties are oil sardines, mackerel, cod fish, sharks, prawns and shrimps.

Sericulture. With about 5 per cent of the world's silk production in Indian hands, the country takes the fourth place, yielding the first three to Japan, China and Russia. Karnataka contributes today nearly 4 per cent of the world's mulberry silk, with sericulture confined to just a few districts This industry provides part employment directly and indirectly to more than 6 per cent of the State's population now

Minerals. Karnataka is the home of a large number of minerals of economic importance. It contributes all the gold and silver produced in the country. The estimated reserves of high grade iron ore in the State are placed at 5,000 million tonnes These reserves are found mainly in the Chitradurga belt The National Mineral Development Corporation of India has indicated that reserves of nearly 1,000 million tonnes of magnesite, iron ore, with an iron content ranging from 25 to 40, have been found in Kudremukh Ganga-Mula region in Chickmagalur district The estimated reserves of manganese in the State are well over 10 million tonnes, Major occurrences are in the Bellary and North Kanara districts.

Limestone is found in many regions of the State. The proved deposits are placed at about 1,500 million tonnes. These deposits have been found in the districts of Bijapur, Gulbarga and Chitradurga.

Next to orissa, Karnataka is the largest producer of chromite. It is one of the only two states of India producing magnesite, the other being T Nadu. The other minerals of industrial importance are corundum, garnet, emery, asbestos, bauxite and clay.

Power. Karnataka is richly endowed with hydroelectric power potential. Along with Kerala and MP, Karnataka is one of the few States which are surplus in power. The surplus power of Karnataka is being supplied to neighbouring States.

The power development in this State dates back to 1902 when the Kaveri river was harnessed to supply power from Sivasamudram Station

Table 202

Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Bhadra. Shimoga	33,200 kW	N. A.
Jog. Shimoga	120,000 kW	N. A
Kalinadi (Hydro) Construction of a pick-up dam across the river Kali at Bommanahalli and diversion of the waters of Kali to Nagjhari Power House.	Three units of 132 MW	Karnataka State
Munirabad. Raichur.	27,000 kW.	N A.
Sharavathi (Hydro) Main dam near Linganamakki village and a subsidiary dam at Talakalae near Jog falls in Shimoga District.	Stage I: 178,200 kW Stage II: 534,600 kW Stage III: 178,200 kW	
Shimshapura. Mandya	17,200 kW	N A.
Shivasamudram. Mandya	42,000 kW.	K.A.

Industries. The main industries of the State with the major centres of production are:

Textiles (Bangalore, Devangere, Bellary, Mysore, Hubli, Gadag, Gakek, Gulbarga); Engineering (Bangalore, Harihar); Mineral and Metal (Bangalore, Bhadravati, Bellary, Kolar, Shimoga); Food, drink and tobacco Bangalore); Chemicals, dyes, etc (Bangalore, Karnataka); Paper and printing (Bhadravati, Nanjangud, Dandeli, Mandya and Bangalore): Gins and presses (Devangere, Belgaum, Bellary, Dharwar, Gulbarga and Raichur)

Table 203

Position of Top Eight Industries in Karnataka in Terms of Value of Output

	Karnataka		India	
Industry	*Rs crores*	*Percentage to total output of larger factories*	*Rs. crores*	*Percentage to total output of larger factories*
Electrical machinery	39	14 6	339	4.7
Spinning, weaving etc.	36	13 5	1165	20.3
Tobacco manufactures	23	8.6	172	2 4
Miscellaneous food preparations	21	7.9	674	9.3
Non-electrical machinery	20	7.5	324	4.5
Electricity	19	7.1	394	5.5
Sugar and gur	16	6.0	362	5 0
Iron and steel	15	5.6	649	9.0
Others	78	29.2	2834	39 3
Total for all industries	267	100 0	7213	100.0

Literacy and Education

Karnataka ranks 14th in literacy with a literacy percentage of 31.52. However, its progress in education is good The latest data reveal that there were 34972 primary and secondary schools in the State with enrolment of 45 lakh students. There were also 1097 nursery schools.

Among the districts, Bangalore, with 3,525 schools or 15 per cent of the total number of schools in the State, has the maximum educational facilities. The lowest number of schools was found in Coorg district—348 primary and 32 secondary schools.

The State has four Universities: Bangalore University, Karnataka University, University of Mysore and University of Agricultural Sciences.

Table 204

Newspapers

(Dailies)

Name	*Language*	*Place of Publication*	*Circulation*
Deccan Herald	(English)	Bangalore	72438
Kannada Prabha	(Kannada)	„	52217
Prajavani	(Kannada)	„	99248
Samyukta Karnatak	(Kannada)	Hubli & Bangalore	62085
Udayavani	(Kannada)	Manipal	31725
Indian Express	(English)	Madurai Vijayawada Madras Bangalore& Cochin	187261*
Andhra Prabha	(Telugu)	Vijayawada Bangalore	105564
Nav Bharat	(Kannada)	Mangalore	NA
Weeklies with circulation of 50,000 and above:			
Prajamata	(Kannada)	Bangalore	76185
Sudha	(Kannada)	Bangalore	113274
Sunday Standard	(English)	Madurai Vijayawada Madras Bangalore & Cochin	212547
Monthly Magazines with circulation of 25,000 and above:			
Kasturi	(Kannada)	Hubli	27729
Mallige	(Kannada)	Bangalore	30299
Mayura	(Kannada)	Bangalore	45045

Note: Average circulation Jan-June 1974

Source: A. B. C.

* See also Newspapers AP & T. Nadu.

Tourism

The State is rich in tourist attractions. The important centres are: Badami, Bijapur, Halebid, Hampi, Jog falls, Kolar, Mysore, Nandidurg, Shrayenabelagola, Seirngapatnam, Sivasamudram, etc.

Badami is famous for its Hindu temples and sculptured caves of the 6th century A.D.

Bangalore, the capital of Karnataka is a health resort. It is a well laid out city with every modern convenience. Places of interest are: Lal Bagh, Maharaja's Palace, Tippu's Palace. Venkataramana Swamy Temple and Vidhan Soudha (new secretariat). The Indian Institute of Science, the Bharat Electronics, Hindustan Aircraft. Hindustan Machine Tools and Indian Telephone Industries are also situated in and near Bangalore.

Belur, near Bangalore is famous for its elaborately sculptured temples of the Hoysala period. The Chenna Kesava Temple in Belur built in AD 1116 is the most beautiful temple in Belur.

Bijapur, originally the capital of the old Adilshahi sultans of Bijapur and now part of Karnataka abounds in architectural wealth. Jami Mazjid, the biggest mosque in South India. Gol Gumbaz the tomb of Mohammad Adil Shah and the second largest dome in the world, also called the whispering gallery, Mehtar Mahal, Ashar Mahal, Gagan Mahal, Chini Mahal, Mecca Mazjid, Ibrahim Roza (tomb and mosque of Ibrahim II), Jod Gumbaz (double tomb) and Bara Kaman Mazjid are among the most intersting sights in Bijapur.

Halebid, about 10 miles from Belur was the ancient capital of the Hoysala kings. Though much of the city was destroyed, some Jain and Hindu temples, still remain. The twin temples, Hoysaleswara and Shanthaleswara with a Nandi pavilion in front are the most beautiful of the surviving temples.

Hampi, is the ruined capital of the old Vijayanagar empire. The ruins are about 600 years old and are described as "virtually a vast open air museum of Hindu monuments in the Dravidian style of architecture."

Jog Falls or Gersoppa Falls is on Sharavathi river. It has a height of 830 ft. with a width of 230 ft.

Kolar Gold Fields is about 90 miles from Bangalore. The mines have been nationalised.

Mysore City, the second city in Karnataka State, and the residence of the old royal family of Mysore is celebrated for its Dasarah Festival. The city closely associated with the ruling family derives its name from Mahishasur, a demon, who was destroyed by Chamundi the household deity of the royal family. Places of particular interest in Mysore are the Maharaja's palace, Jaganmohan palace, Chamundi Hill with the famous stone bull and temple. Zoological gardens, Krishnaraja Sagar Dam and Brindavan Gardens.

Nandidurg is a hill station near Bangalore, where Tippu Sultan had his summer residence.

Shrayanabelgola, a Jain centre in Karnataka State is situated some 50 miles north east of Mysore city. The place abounds in ancient monuments, the most famous of which is the statue of Gomatesvara, a fifty-seven foot stone colossus, the tallest monolithic statue in the world

Srirangapattana or Seringapatam, some 10 miles north of Mysore City is an island in the Kaveri river. This was the fortified capital of Tippu Sultan, who died fighting the last battle of Mysore, within its wall. Besides Tippu's fort Srirangapattana has many intersting monuments: subterranean dungeons where the English prisoners were kept, Jumma Masjid, Tippu's summer palace of Gumbaz, where Tippu and his father Hyder Ali lie buried, and Ranganatha Swamy temple with a history that goes back to the 13th century

Sivasamudram lies between two branches of the river Kavery. The Kaveri at this point breaks out into a cascade of more than 200 ft. depth known as the Sivasamudram Waterfalls.

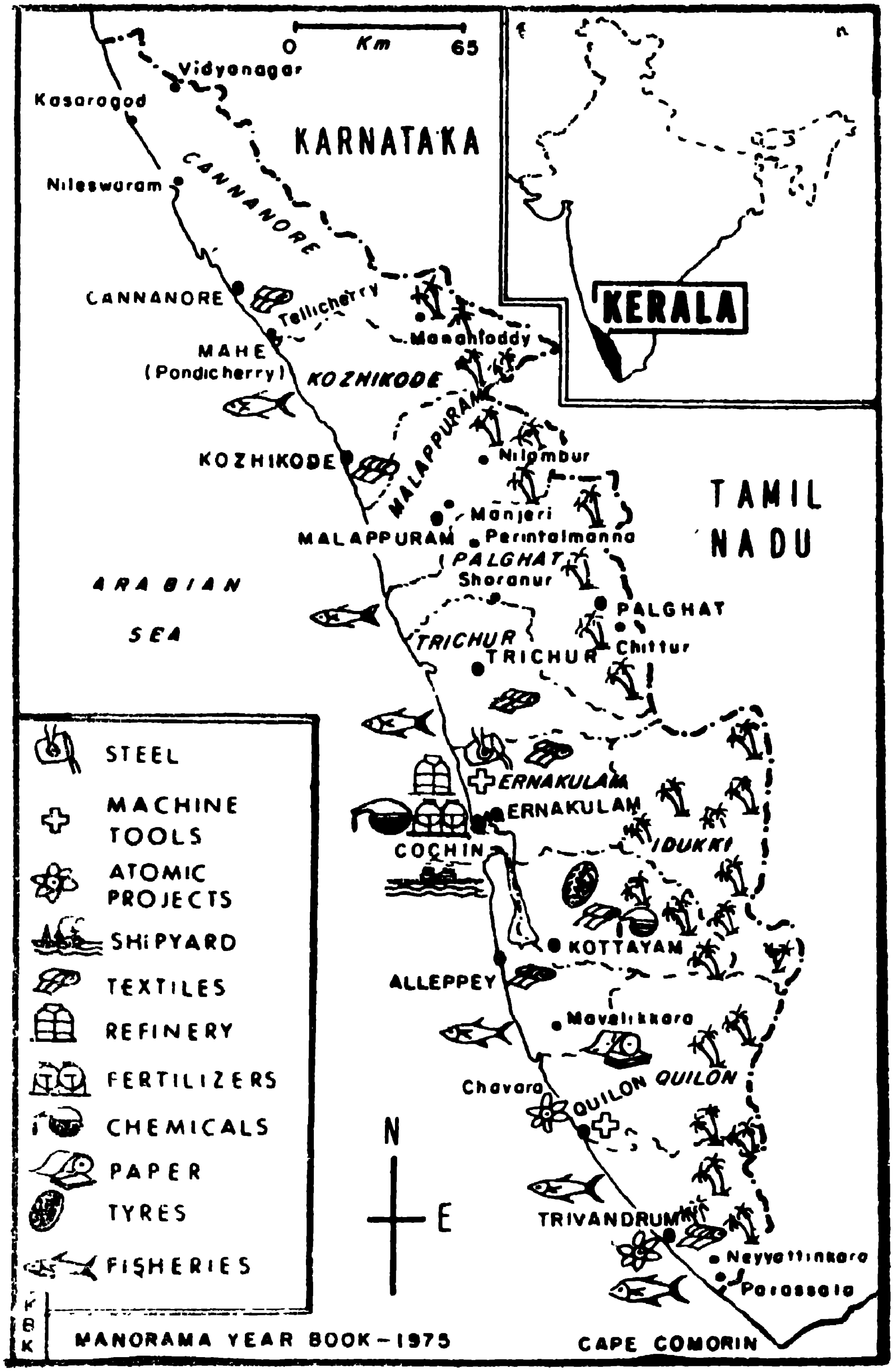
KERALA

Area:	38,864 sq. km.
Population:	21,347,375
Principal Language:	Malayalam
Capital:	Trivandrum
Governor:	N. N. Wanchoo
Chief Minister:	C. Achutha Menon
Leg. Assembly Speaker:	K. Moideenkutty Haji
Chief Justice:	P. Govindan Nair

Kerala is a Small state, tucked away in the south west corner of India. It has an area of 38,864 sq. km which represents only 1.03 per cent of the total area of India But. it supports a population of 21,347,375 which is 3.89 per cent of the total population of the country (1971). The disproportion between its area and population is reflected in the density—which in 1971 was 549 persons to the sq. km. This is the highest density among the States of the Union, higher densities being registered only by four Union Territories—Delhi (2,723), Chandigarh (2,254), Laccadive, Minicoy and Amindivi Islands, — now Lakshadweep (994) and Pondicherry (982).

Kerala has always led and still leads all other states of India in literacy with 60 16 per cent literates. Among States and Territories together, Kerala is second in point of literacy, Chandigarh being first with 61.56 per cent, having a marginal 1.14 lead over Kerala.

But despite the leadership in density and literacy, Kerala is a very backward state economically.



MANORAMA YEAR BOOK – 1975

Physiography

Kerala may be divided into three geographical regions (1) Highlands (2) Midlands and (3) Lowlands The Highlands slope down from the Western Ghats, which rise to an average height of 3,000 feet, with a number of peaks well over 6,000 feet in height. This is the area of major plantations like tea, coffee, rubber, cardamom and other spices. The Midlands lying between the mountains and the Lowlands is made up of undulating hills and valleys. This is an area of intensive cultivation Coconuts, arecanuts, tapioca, bananas, rice, ginger, pepper, sugar cane and vegetables of different varieties are grown in this area. The Lowlands, or the coastal area which is made up of the river deltas, backwaters and the shore of the Arabian Sea is essentially a land of coconuts and rice. Fisheries and coir industry constitute the major industries of this area

Rivers. Kerala is the land of rivers and backwaters. More than forty rivers cut across Kerala with their innumerable tributaries and branches, but these rivers are comparatively small and being entirely monsoon-fed, practically turn into rivulets in summer, especially in the upper areas.

Backwaters The backwaters form a specially attractive and economically valuable feature of Kerala. They include lakes and ocean inlets which stretch irregularly along the coast. The biggest backwater is the Vembanad lake, some 80 sq. miles in area which opens out into the Arabian Sea, at Cochin port. The Periyar, Pamba, Manimala, Achenkovil, Meenachil and Moovattupuzha rivers drain into this lake. The other important backwaters are Veli, Katinamkulam, Anjengo, Edava, Nadayara, Paravoor, Ashtamudi (Quilon), Kayamkulam, Kodungallore (Cranganore) and Chetuva The deltas of the rivers interlink the backwaters and provide excellent water communications to the lowlands of Kerala. A navigable canal 228 miles long stretches from Trivandrum, the capital of Kerala, to Tirur in the far north.

Formation of the State

When India became free, Kerala was made up of two native states Travancore and Cochin, and Malabar which was under the direct administration of the British. One of the first steps taken by independent India was to amalgamate small States together so as to make them viable administrative units. In pursuance of this policy the Travancore and Cochin States were integrated to form Travancore Cochin State on 1st July 1949. But Malabar remained as part of the Madras Province Under the State's Re-organisation Act of 1956, Travancore Cochin State and Malabar were united to form the State of Kerala on 1st November, 1956.

Some territorial adjustments had necessarily to be made on re-organisation. In this adjustment, Kerala lost to Madras, the taluks of Thovala, Agasteeswaram, Kalkulam and Vilavancode in the far south and Shencotta in the east, while it gained the Malabar district and the Kasargod taluk of South Kanara district in the north The Laccadive, Minicoy and Amindivi Islands lying off the coast of Malabar were detached from Kerala and declared a Union Territory.

Administration

Legislature. The Legislature consists of only one house the Legislative Assembly · of 133 members.

The State is divided into eleven districts.

Table 205

Districtwise Population of Kerala —1971 Census

District	*Area in Sq. Km.*	*Population (lakhs)*	*Density per Sq. Km.*	*Headquarters*
Cannanore	5706	23.65	415	Cannanore
Kozhikode	3729	21.06	565	Kozhikode
Malappuram	3638	18 56	510	Malappuram
Palghat	4400	16.85	383	Palghat
Trichur	3032	21.29	702	Trichur
Ernakulam	2377	21.64	910	Ernakulam
Kottyam	2196	15.39	701	Kottayam
Idikki	5087	7.66	150	Kottayam (temporary)
Alleppey	1884	21 26	1120	Alleppey
Quilon	4623	24 13	522	Quilon
Trivandrum	2192	21 97	1003	Trivandrum
State	38864	213.47	549	

On Jan. 26, 1972 Idukki was carved out of the old Ernakulam and Kottayam districts and comprises the taluks of Devikulam, Udumpanchola, and Peermade from the old Kottayam district and Thodupuzha taluk (excluding the villages of Manjallur and Kallurkad) from the old Ernakulam District. Its permanent headquarters will be the Idukki-Kulamavu complex built around the Idukki- hydel project.

Economic Structure

Kerala, with a population of 213 lakhs growing at the rate of 2.63 per cent per annum and a density of 549 per sq. kilometre as against the All India Average of 182, presents complex problems in the spheres of food, employment and housing. The state is 50 per cent short of food. More than a million people, most of whom are educated, are unemployed.

Agriculture. Owing to historical and climatic reasons the State has developed commercial crops more than food crops. Consequently, the state is short of foodgrains, especially rice, which is the staple food of the people.

Table 206

Area and Production of Principal crops 1972-73

	Crop	*Area in '000 hectares*	*Production Unit '000 tonnes*
1	Rice	873.7	1376 4
2	Sugarcane	7.7	40 0
3	Pepper	116.0	25.0
4	Ginger	11.8	23.5
5	Cardamom	47.5	1.3
6	Banana & other Plantain	47.3	357.9
7	Cashewnut	101.5	113.9
8	Tapioca	304.8	5692.3
9	Coconut	745.4	3921 0*
10	Arecanut	88 6	13136.0*
11	Tea	38.3	43.7
12	Coffee	34 7	14.9
13	Rubber	195.6	91.9
14	Oil seeds, other than Coconut	27.8	19.8
	Total cropped area	2985.8	...

* Million nuts.

Table 207

Imports of Rice

Year	*Quantity Imported lakh Tonnes*
1968	.. 6.24
1969	... 9.05
1970	... 7.04
1971	... 7.47
1972	... 7.74

Plantations. The chief plantation crops of Kerala are tea, coffee, rubber and cardamom. They together account for about 10 per cent of the total cropped area and 7 per cent of the gross value of the agricultural produce of the State.

Tea. The area under tea in the State diminished from 41,158 hectares in 1968-69 to 38,295 hectares in 1969-70 and it formed 10 8 per cent of the total area under the crop in India. The total number of tea estates in Kerala as on 31st March 1969 was 2,554 of which 2,308 were small holdings (less than 5 hectares). These holdings making up 90 per cent of the total number of estates accounted for less than 4 per cent of the total area under tea The very large estates (of 200 hectares and above) numbering only 87 (3 per cent) covered as much as 75 per cent of the total area under tea.

Coffee. The total area under coffee in Kerala went up from 27,678 hectares in 1968-69 to 28,873 hectares during 1969-70 recording an increase of 4.3 per cent. Kozhikode, Cannanore and Palghat Districts constitute the major coffee growing regions in Kerala. Robusta and Arabica are the two varieties cultivated in the State.

Rubber. Kerala leads all other States in rubber plantations. The State with 1.83 lakh hectares under rubber accounted for 92.8 per cent of the area under the crop in India in 1969-70. The small holdings numbering 104,523 units covered 1 26 lakh hectares while the large estates comprised 589 units and covered 0 56 lakh hectares. The average area of an estate is 102 1 hectares and that of a holding is 1.22 hectares.

Table 208

Some Basic Facts

	Kerala	*All India*
Percentage to working force (1971)		
(a) Cultivators	17.8	43.3
(b) Agricultural labourers	30.7	26.3
(c) Non-agricultural workers	51.5	30.4
Percentage of villages electrified as on March 31, 1974	87.3	27.3
Per capita value added by manufacture in Rs. (1969)	40	48
Bank offices per lakh of population (December-end 1973)	5.3	3.0
Per capita income in Rs. (1968-69)	526	549

Irrigation. In 1969-70, 55 per cent gross area under paddy was irrigated as against 54 per cent in 1968-69. The source wise distribution of area irrigated is shown in the following table:

Table 209

Irrigation–Sourcewise

Area in '000 hect.
1971-72 and 1972-73

Source	*Net area*		*Gross area*	
	1971-72	*1972-73*	*1971-72*	*1972-73*
Govt. canals	207.1	207.1	347.5	347.5
Pvt. Canals	10.2	10.2	12.3	12.3
Tanks	74.0	74.0	86.2	86.2
Wells	5.5	5.5	5.5	5.5
Other Sources	142.1	142.1	160.4	160.4
Total	438.9	438.9	611.9	611.9

Table 210

Crop–wise

Paddy	..	499.1	499.1
Sugarcane	.	4.3	4.3
Other food crops	.	55.7	55.7
Non-food crops	..	52.8	52.8
Total	..	611.9	611.9

Table 211

Irrigation Projects

Name and Description	*Benefit (area in hectares)*
Kallada A dam across the river Kallada in Quilon district about 72 km. from Trivandrum.	105,222
Kuttiyadi. A dam across the river Kuttiyadi at Peruvannamushi in Kozhikode dist.	31,162
Malampuzha. A dam across the river Malampuzha at Kadukkamkunnam village of Palghat dist.	38,527
Pamba. A barrage across the river Kakkad, a tributary of the river Pamba 152.44 m. upstream of Perinad rubber factory in Quilon.	33,995
Periyar. Across the river Periyar at Plancode near Alwaye in Ernakulam district.	40,996

Animal Husbandry. Kerala has not shown much improvement in the number of cattle or production of milk. However in poultry, Kerala has shown remarkable progress registering an 84 per cent increase in the production of chicks over the 1968-69 production of 2.54 lakhs. Production of eggs has also shown a high rate of increase.

Table 212

Livestock Population

(No. in lakhs)

	Category	*1966*	*1972*
1.	Cattle	28.57	28.56
2.	Buffaloe	4.71	4.72
3.	Sheep	0.12	0.10
4.	Goat	11.89	14.68
5.	Other livestock	1.12	1.29
6.	Poultry	99.09	122.07

Source: Livestock census 1972.

Forests occupy 27 per cent (10.56 lakh hectares) of the total State area. The State has for some years been following a policy of enriching forest resources by plantations of hard wood like teak and soft wood like eucalyptus. The following table shows the forest area under plantations.

Table 213

Area under Forest Plantation (1972-73)

(Area in hectares)

	Species	*1972-73*
1.	Teak	55771
2.	Soft wood	17872
3.	Jungle wood	1431
4.	Cashew	3355
5.	Rubber	6
6.	Eucalyptus	23705
7.	Mixed plantations	1393
8.	Bamboo	821
9.	Cardamom	152
10.	Sandalwood	246
11.	Wattle	458
12.	Pine	370
13.	Other plantations	597
	Total	106177

Fisheries. The State is well developed in fisheries. The total fish production in 1969-70 was 3.85 lakh tonnes valued at Rs. 28.55 crores as against 3.66 lakh tonnes valued at Rs. 13.2 crores in 1968-69.

Of the total marine fish landings 1969-70 oil sardine consisted 142.8 thousand tonnes (38.3 per cent), prawns 60.9 thousand tonnes (16.4 per cent), and mackerel 52.1 thousand tonnes (14 per cent).

Kerala is the leading exporter of fish and fish products in India. The State accounted for 70 per cent of the quantity and 81 per cent of the foreign exchange value of sea food exports of the country, in 1969-70 as against 70 per cent and 82 per cent respectively in 1968-69.

Table 214

Marine fish landing in Kerala 1972 - 73

	Species	*Quantity (tonnes)*	*Value '000Rs.*
1.	Oil Sardines	99681.7	41183
2.	Other Sardines	8195.8	2978
3.	Prawn	69580.6	142198
4	Mackeral	70425.9	62856
5.	Tunny	14594.4	21686
6.	Seerfish	3249.4	5924
7.	Horse Mackeral	3548.5	3648
8.	Silverbelly	3193.9	1640
9.	Soles	10769.6	1406
10.	Anchovies	888.3	7979
11.	White bait	931.1	1382
12.	Shark and dog fish	14746.3	10370
13.	Cat fish	10698.8	5101
14.	Sabre fish	2729.9	2852
15.	Ribbon fish	5381.9	3101
16.	Lactarius	4092.5	6032
17.	Skates and Rays	8448.8	7639
18.	Jew fish	7174.5	5506
19	Pomfrets	3808.3	6029
20.	Miscellaneous	60550.3	26323
21.	Total	402690.5	365833

Source Fisheries Department.

Minerals. The State's mineral wealth consists mainly of beach minerals like ilmenite, rutile, monazite, zircon and sillimanite as also clays, quartz, sand, lime shell etc Workable reserves of bauxite in Kumbala of Cannanore district, iron ore in Cherupa, Eliottumala, Nanmunda and Naduvannur of Kozhikode district and graphite reserves in Thodupuzha of Idukki District have been discovered and they offer scope for industrial expansion, provided adequate steps are taken to exploit them economically

Power Though the rivers of Kerala are very small, they offer great scope for hydroelectric projects. It is estimated that about 6 per cent of India's total hydroelectric potential is in this State.

At present the installed generating capacity of the State is 546.5 Megawatts.

Table 215

Installed capacity of Hydro Electric projects in operation

	Name of project	*Unit*	*Installed capacity in (MW) as on 31-3-1973*
1	Pallivasal (Idikki Dt.)	MW	37 5
2	Sengulam (Idikki Dt)	,,	48 0
3	Neriamangalam (Ernakulam Dt)	,,	45.0
4	Panniyar (Idikki Dt)	,,	30.0
5	Sabarigiri (Quilon Dt.)	,,	300.0
6	Sholayar (Trichur Dt)	,,	54 0
7	Peringalkuthu (Trichur Dt.)	,,	32.0
8	Kuttivadi (Calicut Dt	,,	75 0
	Total	,,	621.5

Table 216

Statistics relating to Kerala Power System

	Description	*Unit*	*1972*
1	Towns and Villages electrified	Nos.	70
2	Consumers	,,	711212
3	Street lights installed	,,	261660
4	Generation capacity	M.W	621 5
5	Maximum demand	M.W	472.6
6	Unit Generated	MKWH	2351 27
7	Units sold (including internal sales)	MKWH	2030.00
8	Units purchased	,,	2.03
9	Puncha load	KW	18367
10	Total connected load	MW	1127.77
11	Per Capita consumption per annum	Unit	77 41

Industry and Mining. Kerala has several factors favourable for rapid industrialisation. The State is endowed with abundant forest wealth, large deposits of minerals of economic importance, hydroelectric potential, highly inteligent and literate manpower resources and a favourable climate. A number of organisations including the State Department of Industries and Commerce, Kerala State Industrial Development Corporation, Kerala Financial Corporation and Kerala State Small Industries Corporation are ready to assist industrial entrepreneurs by providing technical and financial assistance.

The Kerala State Small Industries Corporation (KSSIC) helps the Small Scale industrialists by supplying them with raw materials and machinery. In addition to executing civil works the Corporation renders help such as construction of factory sheds, etc.

In spite of such encouraging conditions, Kerala still remains an economically backward State. The reasons for this are many. However the chronic political instability of the State is a factor of prime importance and labour troubles thrive in the shadow of political instability. Political parties in their desperate attempt to win the votes of the workers have practically left the industries of the State to the tender mercies of labour unions. In such an inclement atmosphere, few entrepreneurs would come forward with new industries The labour trouble in the Mavoor Rayon Factory (owned by the Birlas) is only one among many such.

Traditional Industries. Among the traditional industries of Kerala, the most important are coir, handloom, cashew and handicrafts.

Coir industry provides employment for about 4 lakhs of workers of which about 1.91 lakh workers have been brought under the co-operative fold. About 554,731 quintals of coir and coir products valued at Rs. 13.66 crores were exported in 1969-70. The number of coir co-operative increased to 555 in 1969-70 The amounts invested by government by way of loans and grants in these societies were Rs. 24.95 lakhs and Rs. 2.9 lakhs respectively as against Rs. 24.95 lakhs and Rs 2.36 lakhs of the previous year. The total amount spent by the State government for coir development increased from Rs. 31.48 lakhs in 1968-69 to Rs. 44.11 lakhs in 1969-70.

Handloom. According to the census of handlooms conducted in 1968, there were 71,325 handlooms and 1,431 powerlooms in the State. But the number of working looms was only 51,776. The industry provides employment for about 85,000 persons: of these nearly 50,000 are weavers Out of 417 handloom primary societies having a membership of 53,206, only 170 societies were properly functioning at the end of 1969-70.

Both in internal consumption and in exports of handloom cloth there is a declining trend. The foreign markets mostly prefer new types of fabrics, mixed fabrics and blended fabrics and therefore Kerala's production has to be so altered as to suit the changing pattern of foreign demand. During the year 1969-70, the decline in export of handloom fabrics was to the tune of Rs. 136,627. This is mainly due to cut in imports by UK , Denmark, Finland and West Germany.

Cashewnut. Cashew industry accounts for about 50 per cent of the factory employment in the State and 40 per cent of the total foreign exchange earnings of the State. Nearly eighty per cent of the cashew factories in India are located in the State, providing employment for about 1.25 lakh workers During 1969-70, 56,415 tonnes of cashew kernels and 6,903 thousand litres of cashew shell oil valued at Rs. 53.64 crores and Rs. 0.85 crores respectively were exported.

The raw nuts required for the industry are largely obtained through imports from foreign countries. In 1970 the total import of raw nuts was 1.7 lakh tonnes costing Rs. 30 crores. From September 1970, the State Trading Corporation entered the market as the sole purchaser of raw nuts from abroad, and they undertook the distribution of nuts to the manufacturers according to their demand and turnover.

The industry is now passing through a very critical period. Many factories are closed down allegedly for want of raw nuts. Curiously enough the closure of the factories has not affected total production considerably. This may be because of Kudivaruppu and other small scale production of cashew kernels. A flawless method for the distribution of raw nuts is yet to be evolved.

Handicrafts. With a view to improving the conditions of artisans engaged in handicrafts, the Government have organised the Handicrafts Development Corporation of Kerala Ltd. (Trivandrum). The Corporation started its activities in March 1969 by taking over the direct control of the Government owned handicrafts emporia at important centres like New Delhi, Madras and Coimbatore and the S. M. S. M. Institute at Trivandrum. Subsequently, some of the production centres like the common facility service centres at Trivandrum, Madras and Kunhimangalam and Wood Seasoning Plant at Cherpu were also transferred to the Corporation During 1969-70, a total sale of Rs 6.38 lakhs was achieved. The purchases by the Corporation during the year totalled Rs. 1.19 lakhs. Handicrafts worth Rs. 0.4 lakh were exported to foreign countries.

Employment. The problem of unemployment in Kerala is assuming serious proportions and it is receiving increasing attention from both the public and the government. On the basis of the findings of a sample survey, open unemployment in 1965 was estimated at 5.47 lakhs, forming 9.1 per cent of the labour force; in addition. 13.78 lakh persons were reported to be under-employed. No comprehensive survey of unemployment has been conducted since then, so that only broad approximations about the subsequent trends of unemployment could be derived. A rough estimate based on Employment Exchange data indicates that open unemployment has presumably risen to 9 lakhs by now, which would constitute 13 per cent of the labour force. Taking into account the projected labour force and the likely increase in employment, the number of under-employed may be estimated to have increased to 17.8 lakhs.

Unemployment among technically and professionally qualified persons is still more acute according to recent studies on some of the critical categories of manpower. It was found that the magnitude of unemployment among them is far more acute than what the registration figures indicate. It is estimated that the number of unemployed among graduate engineers and diploma holders in engineering at the end of the year 1970 is of the order of 3,500 and 5,600 respectively.[4] The unemployment among the medical graduates also is increasing to serious proportions and it is estimated that the number of unemployed doctors at the end of the year is of the order of 650.

Table 217

Employment in the Public and Private Sectors

Period ending	*Public sector*	*Private sector*	*Total*
31-12-1969	291082	427715	718797
31-12-1970	293318	409562	702880
30-6-1971	319926	406114	726040
30-6-1972	325115	420254	745369
30-9 1972	343837	414653	758490

Source: Economic Review Kerala 1972.

Table 218

Distribution of work seekers by Educational Level*

Period ending	*Below S.S.L.C.*	*S.S L.C.*	*Pre-Degree*	*Graduates*	*Post-Graduates*	*Total work seekers*
31-12-69	96,153	124,469	6,275	11,002	1,687	239,586
31-12-70	115,304	151,279	7,469	17,703	1,994	293,754
31-12-71	166,305	167,714	10,168	20,841	2,253	367,381
31 12-72*	N.A.	N.A.	N.A.	N.A,	N,A.	431,839

* Provisional

Source Ecnomic Review Kerala 1972.

Table 219

Number of Professional and Technical Work Seekers

Period ending	*Medical Graduates*	*Engineering Graduates*	*Diploma holders in Engineering*	*I.T.I.Certificate holders*	*Agricultural Graduates*	*Veterinary Graduates*
31-12-1969	185	1,299	N.A.	N.A.	156	N.A.
31-12-1970	281	1,852	3,547	8,380	133	70
31-12-1971	405	2,068	3,450	9,894	128	116
30- 6-1972	391	1,908	3,671	8,745	103	53

Source: Economic Review Kerala 1972.

Literacy and Education

Kerala with a literacy percentage of 60.16 in 1971 is the leading State of India in education. The per capita expenditure of the State in education in 1969-70 was Rs. 25·18. This is the highest expenditure spent by any State in India expect Nagaland.

Higher Education In the field of higher education, the establishment of more and more Arts and Science colleges became inevitable as the number of students seeking college education increased steadily over the years. There were 120 Arts and Science colleges in the State during 1969-70 as against 115 in 1968-69. Out of these, 107 were under private management.

The State has four universities—the Kerala University, the Cochin University, the Calicut University and the Kerala Agricultural University.

Table 220

Educational Institutions

		1973-74		
		Government	*Private*	*Total*
1	Lower Primary Schools	2807	4097	6904*
2	Upper Primary schools	809	1739	2548
3	High Schools	452	952	1404
4	Basic training schools	12	76	88
5	Arts and Science Colleges	15	105	120
6	Training Colleges	4	15	19
7	Industrial Training Institutions	12	28	40
8	Polytechnics	10	7	17

---

* Excluding 183 Government L. P. Schools sanctioned during 1973-74,

Source: Economic Review-1973

Table 221

Section-wise number of students in Kerala

	Section	*1973-74* *No. of students*
1	Lower Primary section	2918844
2	Upper Primary section	1485872
3	High school section	865861
4	Basic Training section	1720

Table 222

Newspapers

(Dailies)

Name	*Place of Publication*	*Circulation**
Chandrika (Malayalam)	Kozhikode	25,886
Deepika (Malayalam)	Kottayam	47,972
Desabhimani (Malayalam)	Kozhikode and Cochin	37,658
Express (Malayalam)	Trichur	32,730
Kerala Kaumudi (Malayalam)	Trivandrum	1,31,385
Malayala Manorama (Malayalam)	Kottayam & Kozhikode	2,92,355
Mathrubhumi (Malayalam)	Kozhikode & Cochin	2,58,588
Janayugam (Malayalam)	Quilon	n a,

Weeklies with circulation of one lakh and above:

Malayala Manorama Weekly (Malayalam)	Kottayam	3,20,222
Mathrubhumi (Malayalam)	Calicut	80,612

Monthly magazines with circulation of 25,000 and above:

Cinema Masika (Malayalam)	Kottayam	56,729
Balarama (Malayalam)	,,	63,099
Kuttikalude Deepika† (Malayalam)	,,	30,044

---

* Average circulation Jan.-June 1974

Source: A.B.C†

Covers a period of 12 months

Tourism

The State is a tourist's paradise. The major tourist centres are:

Cape Comorin (Kanyakumari) the southernmost tip of India, (87 km south of Trivandrum) was formerly part of Kerala, but is now part of the T. Nadu State. The Temple at Cape Comorin dedicated to the Virgin Goddess (Kanyakumari) is a place of pilgrimage for Hindus. The Arabian Sea and the Bay of Bengal meet at Cape Comorin. The Vivekananda Mandapam built on the occasion of the Swamiji's birth centenary (1970) and the famous Gandhi Mandapam, with a central stupa, 79 ft. high, attract visitors to Kanyakumari

The sunrise and sunset on full Moon days at Kanyakumari are also objects of great attraction.

Cochin (See also Ernakulam) one of the major ports of India and the finest in the East lies more or less in the centre of Kerala. The port is a complex of three towns and several islands, one of them man-made. There are many ancient monuments in this area including the tomb of Vasco da Gama the Portuguese captain, who discovered the searoute to India. Other places of interest are Jewish Synagogue, Dutch Palace and Bolghatty, a lovely island overlooking the Cochin harbour, where a palace, originally built by the Dutch, now serves as a tourist bungalow.

Ernakulam lies on one side of the Cochin harbour and is famous for its backwaters

Kottayam, an ancient town of Kerala, lying between Trivandrum and Thekkady is prominent in the history of the Christians of Kerala. It is also a great cultural centre and the home of Malayalam journalism

Kovalam is seven miles south of Trivandrum, capital of Kerala. It is a pleasant and famous seaside resort with facilities for sea-bathing.

Trivandrum, formerly capital of the Princely state of Travancore and now the capital of Kerala is a well kept city of hills and plains Places of interest are Kaudivar Palace, Museum, Chitralayam (Art Gallery), Zoo, Aquarium and the Sri Padmanabha Swamy Temple

Thekkady, high up in the Western Ghats in Kerala is famous for its dammed up lake and wild life sanctuary. One can cruise in the lake and see at close quarters herds of elephants, bison, deer and sambhar coming to the lake for drink

MADHYA PRADESH

Area:	442,841 sq. km
Population:	41,654,119
Principal Language	Hindi
Capital:	Bhopal
Governor:	Satya Narayan Sinha
Chief Minister.	P C. Sethi
Leg. Assembly Speaker:	Gulsher Ahmed
Chief Justice:	P K. Tare

Physiography

Except for the valleys of the Narmada and the Tapti, M. P. consists of a plateau with a mean elevation of 1,600 ft above sea level, interspersed with the mountains of the Vindhya and the Satpura ranges. The main river systems are the Chambal, Betwa, Sindh, Narmada, Tapti, Mahanadi and Indravati.

The average rainfall in the different regions of the State ranges from 30 to 60 inches. The climate is extreme in the north, temperate and breezy in the plateau and generally hot and humid in the eastern and southern plains Nearly a third of the State's area is covered with tropical forests.

Formation of the State

Situated in the centre of India and bounded on all sides by other Indian States, Madhya Pradesh (Central Province) is entirely justified in its name. It is the biggest State in India and was created on November 1, 1956 out of the former states, then known as Madhya Bharat, Vindhya Pradesh, Bhopal and 14 Mahakoshal districts of the old Central Provinces under the British.

This sprawling giant of a State is really an ill-assorted conglomeration of old feudal States some of them big,, many of them small, and all of them undeveloped and backward.

The following table shows the number of Princely States absorbed into Madhya-Pradesh with their areas and location

Table 223

Name of the erstwhile State	*Name of the Dist. where located*	*Area (sq. Miles)*
Ajaigarh	Panna	788
Alipur	Chhatarpur	73
Alirajpur	Jhabua	849
Baraundha	Satna	228
Barwani	Khargone	1,189
Bastar	Bastar	13,701
Bhopal	Bhopal	6,921
Bijawar	Chhatarpur	980
Changbhakar	Surguja	899
Chhatarpur	Chhatarpur	1,170
Chhuikhadan	Durg	153
Datia	Datia	846
Dewas (Senior)	Dewas	866
Dewas (Junior)	Dewas	
Dhar	Dhar	1,798
Gwalior	Gwalior	26,367
Gaurihar	Chhatarpur	72
Indore	Indore	9,934

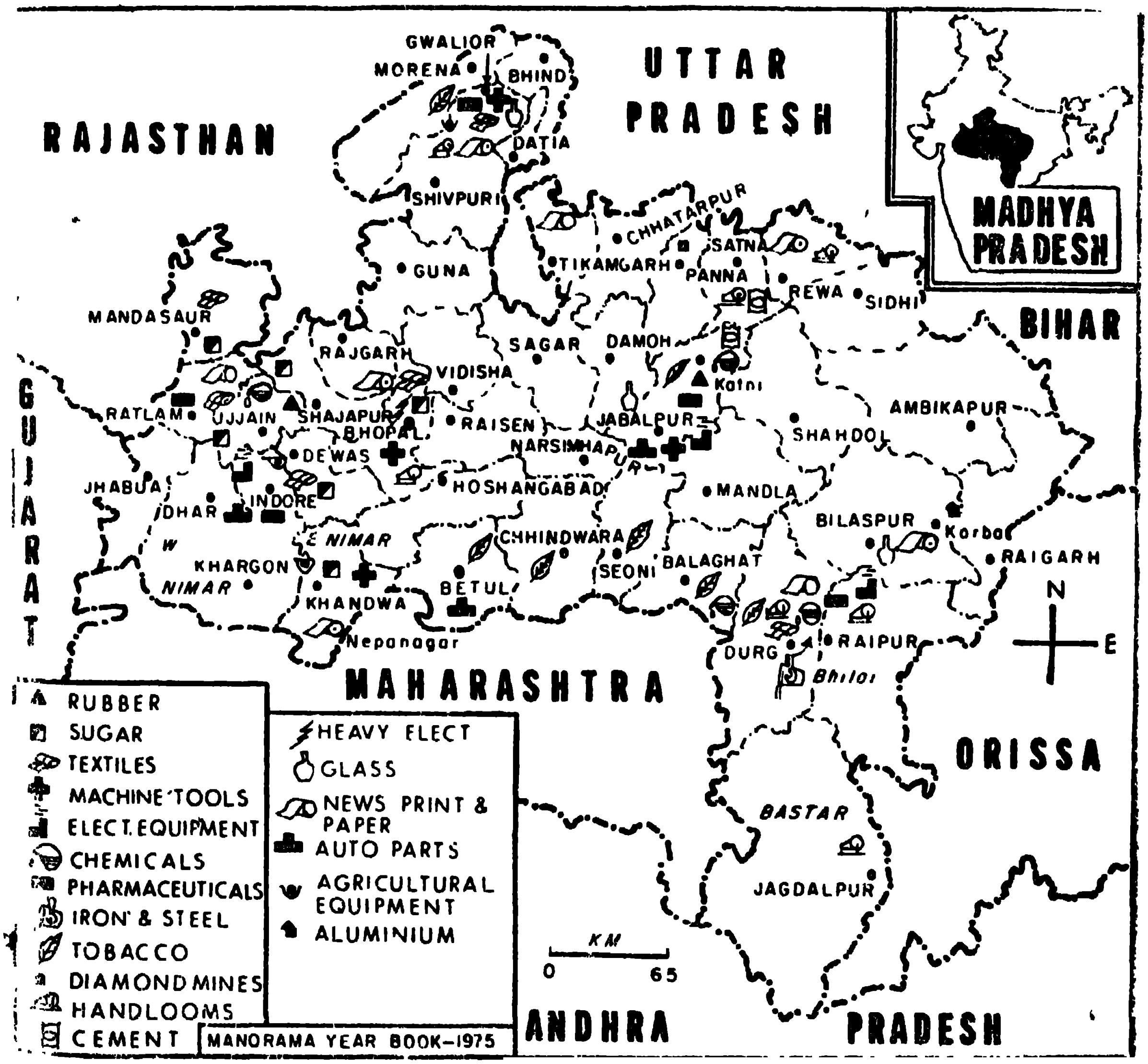
Administration

Legislature. The legislature is unicameral—the Legislative Assembly—consisting of 297 members.

The State is divided into 43 districts.

Table 224

	District	*Area (sq. km)*	*Population 1971 census)*	*Headquarters*
1	Balaghat	9,245	977,583	Balaghat
2	Bastar	39,069	1,514,956	Jagdalpur
3	Betul	10,061	736,196	Betul
4	Bhind	4,467	793,915	Bhind
5	Bilaspur	19,905	2,440,962	Bilaspur
6	Chhatarpur	8,690	712,385	Chhatarpur
7	Chhindwara	11,824	989,413	Chhindwara
8	Damoh	7,301	573,263	Damoh
9	Datia	2,034	255,267	Datia
10	Dewas	7,014	594,336	Dewas
11	Dhar	8,149	842,400	Dhar
12	Durg	19,670	2,461,931	Durg
13	Guna	11,017	783,748	Guna
14	Gwalior	5,213	858,005	Gwalior
15	Hoshangabad	10,016	895,870	Hoshangabad
16	Indore	3,910	1,025,150	Indore
17	Jabalpur	10,164	1,686,030	Jabalpur
18	Jhabua	6,781	667,811	Jhabua
19	Mandsaur	9,726	961,522	Mandsaur
20	Mandla	13,257	873,577	Mandia
21	Morena	11,586	985,338	Morena
22	Narasimhapur	5,138	519,270	Narsimhapur
23	Khandwa (East Nimar)	10,705	879,331	Khandwa
24	Khargone (West Nimar	13,411	1,284,812	Khargone



MANORAMA YEAR BOOK—1975

25	Panna	7,122	479,077	Panna
26	Raigarh	12,910	1,278,705	Raigarh
27	Raipur	21,251	2,613,531	Raipur
28	Raisen	8,395	553,026	Raisen
29	Rajgarh	6,163	644,346	Rajgarh
30	Ratlam	4,859	626,534	Ratlam
31	Rewa	6,315	977,894	Rewa
32	Sagar	10,246	1,062,291	Sagar
33	Satna	7,495	913,531	Satna
34	Sehore	9,015	1,084,933	Sehore
35	Seoni	8,752	668,352	Seoni
36	Shahdol	14,028	1,029,839	Shahdol
37	Shajapur	6.201	678.359	Shajapur
38	Shivpuri	10,285	676,567	Shivpuri
39	Sidhi	10,532	776,786	Sidhi
40	Surguja	22,337	1,326,439	Ambikapur
41	Tikamgarh	5,047	568,885	Tikamgarh
42	Ujjain	6,081	862,516	Ujjain
43	Vidisha	7.433	658.427	Vidisha

MP is distinguished in two ways neither of them complimentary to the State. First, it has the largest population of Scheduled Tribes of all states (8.3 million) and a high proportion of Scheduled Castes (5 5 million). Together, they constitute nearly one-third of the population While the Scheduled Castes have benefited to some extent by the progress of the State, the Scheduled Tribes have practically remained unaffected. These tribes are concentrated in Bastar district at the extreme south of MP. Bastar is the biggest district in India. With an area of 39,171 sq. km. it is bigger than the State of Kerala This is a district rich in forest wealth and minerals. The wealth of this district has yet to be exploited The uplift of the tribals in the district mainly depends on the progress of this area.

Secondly, MP has been notorious as the home of dacoit gangs whose activites had spread terror among the population for generations. The conversion of the leading dacoits since April 1972[*], has been an epoch making event and augurs well for the future of the State

Economic Structure

"Madhya Pradesh is a study in contrast. It is the largest state in terms of area. The potential of the economy-agricultural and industrial - is tremendous. Land-man ratio, is one of the lowest. And yet by all descriptions, the State is poor. The aggregate industrial productions is small Agriculture lags behind many other states Mineral resources remain untapped."[†]

Table 225

Some Basic Facts

	MP	*All India*
Percentage to working force (1971)		
(a) Cultivators	52 9	43.3
(b) Agricultural labourers	26 6	26 3
(c) Non-agricultural workers	20 5	30.4
Percentage of villages electrified as on March 31, '74	14.8	27 3
Per capita value added by manufacture in Rs. (1969)	20	48
Bank offices per lakh of population (December end 1973)	1.9	3 0
Per capita income in Rs. (1970-71)	550	633

Agriculture. With more than 56 per cent of the area under cultivation, the State has predominantly an agricultural economy. The main crops of MP are jowar, wheat, rice, gram and sugar-cane The rich black soil of the Malwa plateau grows cotton mainly for the textile mills of Indore, Ujjain and Gwalior.

MP is a surplus state in foodgrains. The total cultivated area in the State increased from 379 18 lakh acres in 1951 to 507.87 lakh acres in 1971. Food production, however has increased in a greater proportion that is, from 47.29 lakh tonnes to over 113 lakh tonnes, during the same period This shows that the yield per hectare has increased.

Table 226

rea and Production

1971-72

Crops	*Area (Hect.)*	*Prod. (000 tonnes)*	*Yield per hect.kg.*
Rice	4484.2	3345	746
Jowar	1956.3	1514.2	774
Bajra	202.9	128.1	631
Maize	591 9	578 8	978
S. Millets	1564.4	327.8	210
Wheat	3529	2447	693
Barley	173.6	152.3	877
Total pulses	4268.1	2174.6	510
Groundnut	477.2	314	658
Sesamum	308.9	60	197
Rapseed & Mustard	225.6	99.5	441
Linseed	672 4	164	244
Nigerseed	245.5	32.4	132
Cotton	699.3	334.4	86
Sugarcane Gur	54.6	143	2619
Coriander	37	11.9	322
Opium	17386	499	
Sticklac	8308		

---

[*] For a detailed account of the activities of the dacoits and their conversion see Manorama Year Book 1973, pp. 869-885.

[†] Industrial Development of Madhya Pradesh (Potentials and Problems).

Irrigation. Most of the rivers in MP are rain-fed. During the monsoon they become raging torrents carrying enormous quantities of water. In the dry weather however they shrink to mere rivulets. Schemes have therefore been laid out to entrap the excess water during monsoons and to utilise it for irrigation purposes and for generating electricity.

The State however has not made much headway in irrigation. In 1968 69, only 7.2 per cent of the total cultivated area was irrigated. By 1972, an irrigation potential of 6.75 lakh acres has been created and the net area under irrigation had increased to 3.2 lakh acres

Table 227
Irrigation Projects

Name and Description	*Benefit (Area in hectares)*
Barna. A dam across the river Barna 2.4 km. upstream of village Bari, Raisen district.	66433
Chambal. Mandsaur	283280
Gandhi Sagar Dam. A dam across the river Chambal about 8 km, downstream of Chaurasigarh fort in Mandsaur district.	†
Hasdeo. A barrage across the river Hasdeo, a tributary of Mahanadi at village Dari near Korba Thermal Power Station near Bilaspur district.	††
Tawa. A dam across the Tawa river, a tributary of the Narmada river, 822,96 m. downstream of Tawa and Denwa confluence in Hoshangabad district.	303514

[†] Particulars about the canal are given under Kotah Barrage (Rajasthan). An area of 222,585 hectares in the state will be irrigated through Kotah Barrage.

[††] For supplying cooling water to Korba Thermal Power Station.

Animal Husbandry. The livestock population of MP is maintained more for work than milk.

Table 228
Working Cattle and Buffaloes

('000)

	1966	*1968-69*
Cattle		
Males	8949	8710
Females	136	154
Total	9085	8864
Buffaloes		
Males	1175	1063
Females	14	24
Total	1189	1087
Grand Total	10274	9951

Forests. About two-fifths of the State's land is classed as forest, out of which 66,000 sq. miles (which is nearly one-fourth of the total forest area of Indian Union) are under the State Forest Department. Forest area per thousand persons works out to 1,660 acres compared to 150 in UP, 170 in T. Nadu and 370 in Maharashtra These forests contain a variety of trees belonging to different species and varying greatly in value. Roughly, the State contains about 14,000 sq. miles of teak forest, another 16,000 sq. miles of sal forest and the remaining 36,000 sq. miles of mixed forests

Table 229
Major Forest Products

(In '000 Cubic Metre)

Year	*Timber*	*Fuelwood*
1950-51	308	1501
1955-56	538	2286
1960 61	1150	2890
1965 66	1354	2760
1966 67	2325	3135

Source: *Pocket Compendium of MP Statistics, 1970.*

Minerals. The State is well endowed with minerals. It has fairly large deposits of coal, iron ore and manganese Diamonds sillimanite and ochre are excavated in the northern region of the State Limestone, an essential ingredient in the manufacture of cement, is found extensively in the plateau.

Power. Electricity is generated both by thermal stations and hydel stations. The major thermal stations are: Korba Thermal Station, Satpura Thermal Station and Amarkantak Thermal Station. The hydel projects are the Chambal hydel project jointly with Rajasthan, Tawa project, Gandhi Sagar Hydel Station, Rana Pratap Sagar and Jawahar Sagar.

The total installed capacity of the State rose from 81.5 MW in 1955-56 to 756 MW at the end of 1972 The number of pumps energised by 1972 stood at 112,287 as against a mere 30 in 1956 The number of villages electrified rose from about 140 in 1951 to 9,555 in Dec. 1972.

Table 230

Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Amarkantak (Thermal) At Amarkantak in Shahdol district	Two units of 30 MW each in Stage I and one unit of 55 MW. in Stage II	Jabalpur Rewa divisions
Chambal H. E., Chambal. 386 MW	386 MW	Mandsaur
Gandhi Sagar, Kotah	115 MW	
Korba (Thermal) In the coal fields of Korba in Bilaspur district.	Stage I: Three units of 30 MW each and one unit of 10 MW Stage II: Four units of 50 MW each.	Bilasper & Raipur divisions
Ranapratap Sagar,Chambal	172 MW	
Satpura(Thermal At Sarni in Patharkhada coal fields in Betul district.	Five units of 62 5 MW each	Western Madhya Pradesh

Industry. Major industries of the State are cotton textiles, cement, sugar, potteries, refractories, iron and steel, art silk fabrics, asbestos, biscuits, textile machinery and vegetable oil. There are cotton mills in Indore, Gwalior, Ujjain, Dewas, Maheswar and Burhanpur. The largest cement factory in India is located at Kymore near Katni.

M P has secured some of the giant undertakings in the public sector the Steel Plant at Bhilai; Heavy Electricals, Bhopal; National Newsprint Factory, East Nimar; the Iron ore mines at Bailadila, Aluminium plant at Korba and Copper smelting plant at Balaghat. The State possesses one of the two famous diamond mines[*] of India Panna.

Handicrafts. Certain parts of M P have long been famous for village crafts. Chanderi saris with their delicate weave are a high favourite. Maheswar, too, is known for its hand woven saris. Blankets are woven in Mandsaur and carpets at Gwalior.

Gwalior has specialised in pottery and its products are popular among Indian as well as foreign buyers. Bhopal makes hand bags with intricate gold and silver thread embroidery. Jabalpur with plenty of soft stone near the famous Marble Rocks, produces soap, powder and cigarette boxes, toys and vases from this stone. Brass work is done in Balaghat and Chhindwara and lacquerwork in Seoni.

Literacy and Education

M P is way down in literacy with 22.03 per cent in 1971 as against 29.35 per cent for all India.

Table 231

Educational Institutions

Schools	*No.*	*Pupils*	
		Boys	*Girls*
Primary	36,980	1,858,504	737,738
Middle	5,851	751,293	245,274
H. S. Secondary	1,656	450,269	129,421

No. of Teachers: 142,261 (Primary 80 126; Middle 37,155; H. S Secondary 24,422).

Colleges. The following are the categorywise number of colleges for boys and girls respectively: University: 10;— Arts colleges 81; 11; Science colleges: 11;—; Arts and Science colleges: 71; 10; Home Science colleges: —, 3; Agricultural colleges: —; Commerce colleges; 7;—; Music & Dancing colleges: 22; 1;—; Fine Arts colleges: 6; Law colleges: 28:—; Medical colleges: 15; —; Dentistry colleges: 1;—; Nursing college: 1;—; Veterinary colleges: 2:—; Physical education: 2;—; Social colleges: 1;—; Colleges of education: 11;—; University college of education. 1.—; Sanskrit colleges: 11;—

Universities:(10;—, with number of students.

Ravishankar Vishwavidyalaya, Raipur 22,619; Jivaji Rao Vishwavidyalaya, Gwalior 29,487; Vikram Vishwavidyalaya, Ujjain 30,30[illegible]; Awadesh Pratap Singh Vishwavidyalaya, Rewa 17,351; Indore Vishwavidyalaya, Indore 16,370; Jabalpur Vishwavidyalaya, Jabalpur 16,874; Saugor Vishwavidyalaya, Saugor 3,673; Jawaharlal Nehru Krishi Vishwavidyalaya,

---

[*] The other is Golconda in the Deccan.

Jabalpur n a ; Bhopal Vishwavidyalaya, Bhopal n.a.; Indira Sangeet Vishwavidyalaya, Khairagarh 1,669

Table 232

Newspapers (Dailies)

Name	*Language*	*Place of Publication*	*Circulation**
Jagaran	Hindi	Indore	n a
Nai Duniya	,,	Indore	61,208
Naveen Dunlya	,,	Jabalpur	13,988
Nava Bharat	,,	Indore, Bhopal Raipur and Jabalpur	n a
Deshabandhu	,,	Jabalpur and Raipur	n a
Swadesh	,,	Indore and Gwalior	13,940
Hitawada	English	Bhopal	n a
M.P Chronicle	,,	Bhopal	n a
Dainik Bhaskar	Hindi	Gwalior	8270
Dainik Bhaskar	,,	Bhopal	6,115
Yugadharma	,,	Nagpur Jabalpur and Raipur	28,831

Average circulation Jan. - June 1974

Source: A B C

Tourism

The State has rich tourist potential but they remain untapped Important centres:

Gwalior, famous for its beautiful fort lies about 200 miles to the south of Delhi The chief items of interest are: Gwalior fort, including Raja Man Singh's Palace, Tansen's Tomb, Rani Lakshmi Bai's Chhatri, Tomb of Mohammed Ghaus, Jami Mazjid, State Museum, King George Park and Zoo and Motimahal Palace.

Khajuraho, in Chhatarpur, Madhya Pradesh was once the capital of the Chandela kings and is famous for its magnificent temples.

Pachmarhi, a hill station in MP lies on the Mahadeo hill of the Satpura Range It used to be the summer capital of the Central Provinces (present MP.Government during British administration. Places of interest are Bee Dam, Mahadeo Caves, Dhupgarh the highest peak in the Satpuras, Dorothy Deep Falls, Duchess Falls, Lansdowne Hill, Niphur Springs, Waters Meet, Big Falls, Pansy Pool, Saunder's Pool and Pandava Caves.

Sanchi, is a small village near Bhopal in MP. Its only claim to importance is the huge Buddhist stupa which is the largest and the best preserved stupa in India.

MAHARASHTRA

Area:	30,762 sq. km.
Population:	50,412,235
Principal Language:	Marathi
Capital:	Bombay
Governor:	Ali Yawar Jung
Chief Minister:	V. P. Naik
Leg. Council Chairman:	V. S. Page
Leg. Assembly Speaker:	S K. Wankhede
Chief Justice:	R. M. Kantawala

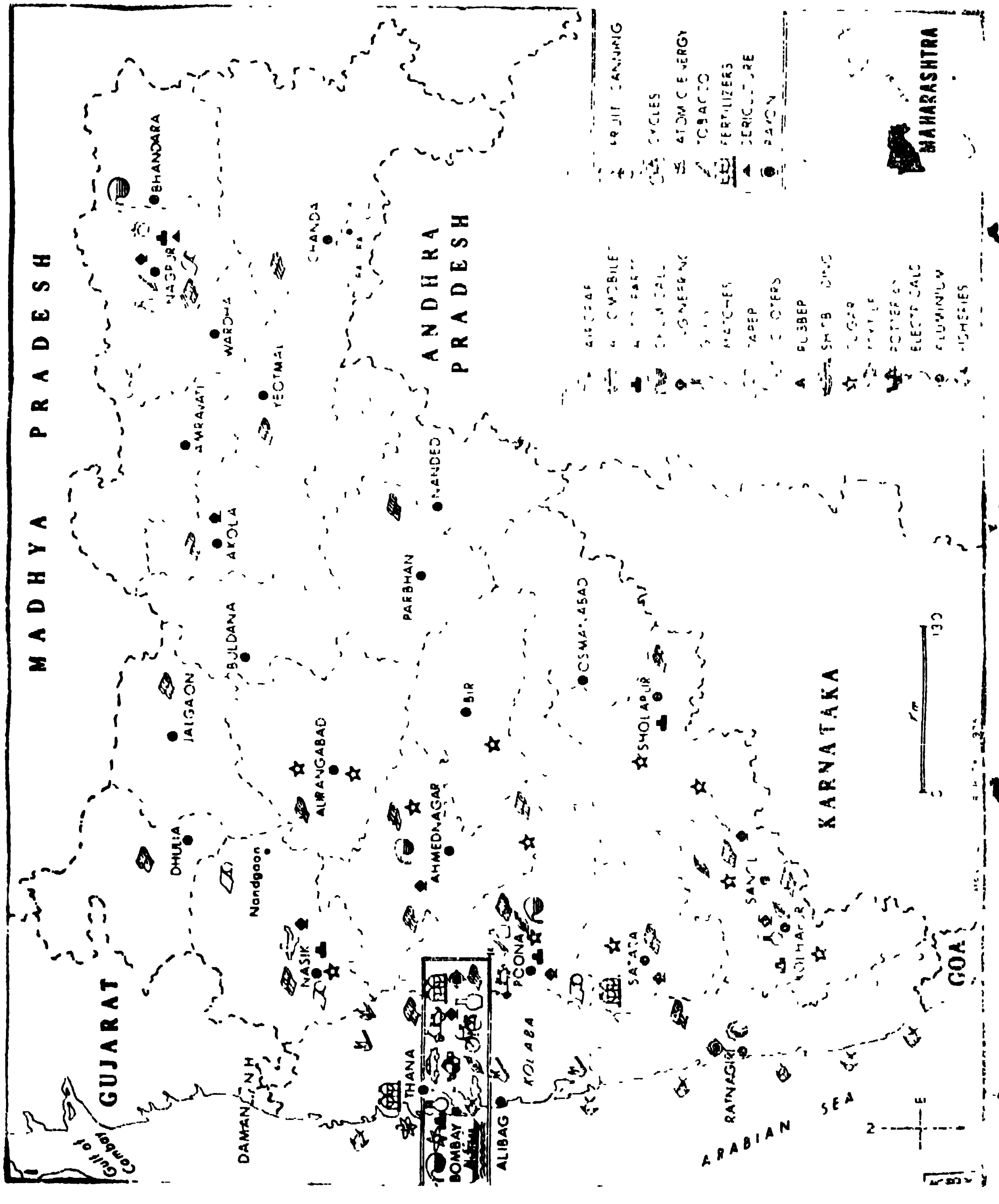
Maharashtra is the third largest state in India both in area and in population. Only Uttar Pradesh and Bihar have larger populations and Madhya Pradesh and Rajasthan have larger areas than Maharashtra.

Physiography

The State of Maharashtra forms a huge irregular triangle with its base on the west coast of India, over-looking the Arabian Sea. The coastal strip, about 560 km. long and not more than 80 km. wide is the Konkan, dotted with paddy fields and coconut gardens. The Sahyadris or the Western Ghats running almost parallel to the sea coast flank the Konkan on its east. The Sahyadri with an average height of 1,200 m is covered with wet ever-green forests which merge into moist deciduous forests on its western side, with dry deciduous forests forming a central belt and thorn and scrub forests, making up the eastern side. To the east of the Sahyadri stretches a vast plateau forming the apex of the triangle. This plateau is drained by the great rivers Godavari, Bhima and Krishna, which rise in the Sahyadris and flow eastward across the Indian peninsula, into the Bay of Bengal The plateau is extremely fertile and provides excellent crops of cotton, oilseeds and sugarcane. The rainfall in the State varies considerably. The areas west of the Sahyadris like the districts of Thana, Kolaba and Ratnagiri receive heavy rains with an annual average of 200 cm. The areas which lie in the rain-shadow of the Sahyadris, however comprise the major portion of the State area and get an average rainfall of around 60 to 75 cm. annually and in some areas less than 50 cm.

History

Historically, Maharashtra falls into three regions, Western Maharashtra, Vidarbha and Marathwada. Among these, Vidarbha has a hoary part and is mentioned many times in the Mahabharata. Maharashtra as a whole figures in history during the Mauryan period when it became part of the Mauryan Empire After the fall of the Mauryas, Maharashtra was under the domination of a number of Hindu dynastics for nearly a thousand years. The Yadavas, the last of these dynasties ended in 1294. Thereafter the state came under a succession of Muslim rulers.



With the rise of Shivaji, Maharashtra entered a new phase in history. Shivaji welded the Maharashtrians into a powerful nation. They became rulers instead of subjects The Peshwas, who succeeded Shivaji built up a Maratha Empire which extended from Gwalior in the north to Tanjore in the south The Maratha power received a set-back at Panipat, in 1761, when the Afghan ruler Ahmed Shah Abdali routed the Maratha forces They recovered only to confront the British power and to be decisively defeated in 1818. After the defeat of 1818, Maharashtra settled down as part of the Bombay Presidency under the British administration

In Independent India, Bombay continued as one State consisting of Maharashtra and Gujarat. This was an experiment in bilingualism—that is, one State comprising two linguistic units. The experiment did not work. Under the Bombay Re organisation Act, 1960 Maharashtra and Gujarat were formed into separate States on May 1, 1960: Mahrashtra, retaining the old capital, Bombay.

Administration

Legislature. The State has a bi cameral legislature, the Legislative Assembly (Vidhan Sabha) consisting of 271 members and the Legislative Council (Vidhan Parishad) consisting of 145 members, of whom 13 are nominated by the Governor and the rest elected

The State is divided into 26 districts.

Table 233

	District	*Area (sq. km.)*	*Population (1971 census)*	*Headquarters*
1	Ahmednagar	17035	2269117	Ahmednagar
2	Akola	10567	1501478	Akola
3	Amaravati	12210	1541209	Amravati
4	Aurangabad	16200	1971006	Aurangabad
5	Bhandara	9214	1585580	Bhandara
6	Bhir	11227	1286121	Bhir
7	Greater Bombay	603	5970575	Bombay
8	Buldana	9745	1262978	Buldana
9	Chandrapur	25641	1640137	Chandrapur
10	Dhulia	13143	1662181	Dhulia
11	Jalgaon	11771	2123121	Jalgaon
12	Kolaba	7198	1263003	Alibagh
13	Kolhapur	8059	2048049	Kolhapur
14	Nagpur	9928	1942688	Nagpur
15	Nanded	10492	1397762	Nanded
16	Nasik	15582	2369221	Nasik
17	Osmanabad	14117	1896687	Osmanabad
18	Parbhani	12489	1506771	Parbhani
19	Poona	15640	3178029	Poona
20	Ratnagiri	13040	1990583	Ratnagiri
21	Sangli	8563	1539820	Sangli
22	Satara	10492	1727376	Satara
23	Sholapur	15021	2253840	Sholapur
24	Thana	9553	2281664	Thana
25	Wardha	6307	779562	Wardha
26	Yeotmal	13925	1423677	Yeotmal

Economic structure

Maharashtra is the most industrialised State in India. With only 9 per cent of the country's population, it contributes 12 per cent of the national income, has 14 per cent of the factories, 17 per cent of productive capital and 21 per cent of industrial employment in India.

Table 234

Some Basic facts

	Maharashtra	*All India*
Percentage to working force (1971)		
(a) Cultivators	35.5	43.3
(b) Agricultural labourers	29.3	26.3
(c) Non-agricultural workers	35.2	30.4
Percentage of villages electrified as on March. 31, 1974	47.2	27.3
Per capita value added by manufacture in Rs, (1969)	146	48
Bank offices per lakh of population (December-end 1973)	3.9	23.0
Per capita income in Rs (1969-70)	731	597

Agriculture. The major food crops are rice, jowar, bajra and wheat while the main cash crops are sugar-cane, cotton and groundnut The area of food crops in proportion to non-food crops is approximately 7:3, the percentage under food crops being 70.47 and that under non-food crops being 29.53.

Table 235

Principal Crops Area and Production

Crops	*(71-72) '000 Area (Hect.)*	*Prod. (000 tonnes)*	*Yield per hectare Kg.*
Rice	1332	1369	580
Jowar	6169	1932	249
Bajra	1135	239	160

Ragi	105.3	84.5	433
S. Millets	176.7		307
Wheat	1009	503	360
Total pulses	2080	643	247
Groundnut	762 7	196.7	258
Sesamum	122.5	23 2	189
Linseed	182.3	27 7	152
Safflower	254	57 8	228

Nigerseed	61 4	3.5	
Cotton	2378	917	75
Sugarcane (gur)	182	1298	7253
Turmeric	9 5	11 5	1211

Irrigation. Out of the gross cropped area of 192 lakh hectares, only 16.4 lakh hectares or roughly 8 5 per cent receive irrigational facilities.

Table 236

Major Irrigation Projects

Name of the Project	*Location*	*Area to be irrigated in hectares*	*Districts benefited*
1	2	3	4
Girna	Dam across Girna near village Panzara, district Nasik	57,206	Jalgaon
Upper Godawari	Four Storages: 1 Waghad on Kalwan river 2 Karanjwan on Kadwa river 3 At Ozarkhed on Unanda river 4 Palkhed on Kadwa River All in Nasik district	44,273	Nasik
Khadakwasla	1 Dam at Panshet 2 Dam at Warasgaon 3 Strengthening of Khadakwasla Dam (existing in Poona District)	31,161	Satara, Sholapur
Vir	Dam near village Vir on boundary of Satara and Poona districts.	16,107	Satara, Sholapur
Mula	Dam across Mula river near Baregaon, Nandur, taluka Rahuri, District Ahmednagar	72,080	Ahmednagar
Bhima	1 Storage near village Phagane on Powna river in Mawal taluka of Poona district 2 Storage near Ujjani on Bhima river, district Sholapur	1,73,050 (gross)	Poona, Sholapur
Warna	Storage on river Warna near Khujgaon, taluka Shirala, district Sangli	99,055	Sangli, Kolhapur
Krishna	Storages on Krishna river at Dhom and Arphal villages and on Venna river near village Kanher, taluka Wai and Satara, district Satara	1,06,287	Sangli, Satara
Itiadoh	Dam on river on Garvi near village Gothagaon, taluka Sakoli, district Bhandara	46,134 (gross)	Chandrapur, Bhandara
Bagh	Dam at Shirpur, taluka Sakoli, district Bhandara	33,670 (gross)	Bhandara
Pus	Dam near village marsul on Pus river, taluka Pus district, Yeotmal	9,360	Yeotmal
Purna	Dam at Yeldari and Diversion dam of Siddheshwar in Parbhani district	61,512	Parbhani
Jayakwadi	Storage near Paithan in Aurangabad district	1,41,640	Aurangabad, Parbhani

Animal Husbandry

Table 237

Livestock Statistics as per 1972 Census

Cattle ..	14,697,000
Baffaloes ..	3,269,000
Sheep ..	2,106,000
Goats ..	5,849,000
Pigs ...	197,000
Horses and Ponies	61,000
Other Livestock	53,000
Poultry ...	11,834,000

Source: *Maharashtra at a Glance 1973 74.*

The State has shown great progess in the production of eggs. The number of eggs produced in 1972 73 was 67.5 crores

Forests. The total area under forests in 62,224 sq. km. which is about 18.5 per cent of the total geographical area of the State. The major forest products are timber and firewood. Teak is the chief timber. Minor forest products include leaves, mainly tendu leaves for beedis, grasses and bamboos, fibres, gums and resins and animal products like lac, honey and wax.

Fisheries. With a coastline of 720 km. the State has great potential for marine fisheries. The main areas for inland fisheries in the State are the Nagpur, Poona and Aurangabad Divisions The total area of impounded waters, including reservoirs is about 120,000 hectares. Annual production of fresh water fish is estimated at about 14,000 tonnes and Marine fish 2.55 lakh tonnes in 1971-72

Minerals. The mineral production of the State in 1972 is given below:

Coal	2,690,000	tonnes
Manganese ..	187,318	,,
Bauxite	315,521	,,
Limestone ...	504,213	,
Dolomite ...	5,285	,,
Silica	34,315	,,
Clays	2,026	,,
Chromite	3,236	,,
Iron ore	715,980	,,

Source: *Maharashtra at a Glance 1973-74.*

Power. Maharashtra occupies a leading position in power development. Tha State has the highest installed capacity generation and sale of electricity, of all the States in the Indian Union. Power is generated in the State by three methods, hydel, thermal and diesel. Of these, hydel power is the cheapest and could be generated on a large scale.

Table 238

Installed capacity—30—3—1971

Hydro Stations:

Koyna, Eldari, Radhanagari, Bhatgar, Khopoli†, Bhivpuru and Bhira.
Total = 844,324 kW

Steam Stations:

Khaperkhada, Paras, Bhusawal Ballarasha, Nasik, Trombay,† and Chola††
Total - 1,071,000 kW.

Diesel Stations:

Aheri and Sirinocha.
Total = 2,272 kW.

† Tata. †† Railways.

Electricity generated in 1972 73	*M.K.W.H.*
Steam	5957 796
Oil	0.425
Hydro	3938 137
Nuclear	557 777
Total	10,454.135

Table 239

Power Projects

Name and Location	*Installed Capacity*	*Areas Benefited*
Bhusawal (*Thermal*). At Bhusawal, Jalgaon district.	One unit of 62,500 kW	Khandesh area
Khaperkheda (*Thermal*) At Khaperkheda about 32 km. from Nagpur.	Three units of 10 MW on first extension and two units of 30 MW each on second extension.	Vidarbha region.
Koyna H. E. Dam across the river Koyna at Deshmukhwadi near Helwak in Satara Underground power station is located at Pophali below ghats.	Stage I: Four units of 60 MW each and Stage II· Four units of 75 MW. each and Stage III: Four units of 10 MW. each.	Bombay, Poona, Satara, Sangli and Kolhapur districts
Nagpur (*Thermal*). At Koradi village about 8 km. north of Nagpur.	Stage I: Two units of 120 MW· each. Stage II: Two units of 120 MW each.	Vidarbha and Marathwada regions.
Nasik (*Thermal*). At Ekalahare village about 5 km. from the Nasik Road. Rly. Stn.	Two units of 140 MW each and one unit of 110 MW. on extension.	Western Maharashtra over Koyna-Tata Nasik Interconnected grid·

Industry

Though Maharashtra is industrially the go-ahead state in India, all its major industries are concentrated in and around Bombay. This means that Maharashtra minus Bombay is undistinguishable from any other part of the country in economic backwardness.

The number of factories in the State increased from 6,703 in 1955 to 10,241 in 1971 and their daily average workers from 6.73 lakhs to 9.97 lakhs Production of coal has gone upto 26.90 lakh metric tonnes in 1972 (2.82 lakhs in 1955) and motor vehicles in operation from 67,000 in 1955 to over 3 lakhs in 1971 Various types of new industries like petro chemicals, titanium dioxide, electronic equipment and conveyer equipment are also coming up in the State.

Literacy and Education

Maharashtra has a literacy of 39.18 per cent, well ahead of the national average.

The number of primary schools in the State increased from 28,347 at the end of 1955-56 to 46,013 by 15th July 1972, an increase of 62 per cent. The number of secondary schools in the State increased from 1,412 at the end of 1955-56 to 5,871 by 15th July 1972 i. e by 312 per cent In respect of higher education, the number of institutions in the State increased from 132 at the end of 1955-56 to 694 by July 5th 1972. The enrolment increased by 508 per cent during this period and was 3 93 lakhs There are eight universities in the State: (1) Bombay, (2) Poona, (3) Nagapur, (4) Marathwada (Aurangabad), (5) Shivaji (Kolhapur), (6) S N D T Women's University (Bombay)., (7) M. Fule Agricultural University, Rahuri and (8) Punjabrao Deshmukh Agricultural University, Akola.

Table 240

Newspapers

Dailies

Name & place of publication	*Language*	*Circulation*
Bombay Samachar, Bombay	Gujarati	112,814
Economic Times, Bombay	English	n. a.
Evening News of India, Bombay	,,	26,553
Financial Express Bombay	,,	n. a.
Free Press Bulletin, Bombay		22,488
Free Press Journal Bombay	,,	n. a.
Hindustan, Bombay	Sindhi	n a.
Inquilab, Bombay	Urdu	n. a.
Janmabhoomi, Bombay	Gujarati	44,285
Janasakti, Bombay	,,	30,107
Lokasatta, Bombay	Marathi	136,632
Mahrashtra Times Bombay	,,	112,606
Navakal, Bombay	,,	36,675
Navabharat Times Bombay	Hindi	63,845
Navashakti, Bombay	Marathi	47,955
Sakal, Poona and Bombay	,,	92,773
Indian Express, Bombay and Ahmedabad	English	108,127
Times of India Ahmedabad and Bombay		205,007
Kesari, Poona	Marathi	41,314
Marathwada, Aurangabad		n a.
Mathrubhumi, Akola & Amaravati		9,872
Nagpur Times Nagpur	English	20,090
Sanchar, Sholapur	Marathi	13,129
Shivashakti, Akola		3,879
Yuga Dharma, Nagpur, Jabalpur, and Raipur	Hindi	28,831
Hitawada, Nagpur	English	n. a
Nav Bharat, Nagapur & Raipur	Hindi	n. a.
Maratha, Bombay	Marathi	n. a.
Tarun Bharat, Nagpur	,,	45,562
Tarun Bharat, Poona	Poona	34,354

Weeklies with circulation of 50,000 and above

Name and place of Publication	*Language*	*Circulation*
Bharat Jyoti, Bombay	English	n. a.
Blitz, Bombay	,,	n. a.
Blitz, Bombay	Hindi	n. a.
Bombay Samachar, Bombay	Gujarati	1,16,464
Dharmayug, Bombay	Hindi	1,72,458
Illustrated Weekly of India, Bombay	English	2,19,458
Loka Satta (Sunday), Bombay	Marathi	2,10,877
Pravasi, Bombay		73,369
Sakal (Sunday), Poona and Bombay		1,02,869
Screen, Bombay, Madras & New Delhi	English	1,09,607

Sunday Standard, Bombay & Ahmedabad		1,36,592
Times Weekly, Bombay, Ahmedabad & New Delhi	,,	3,06,235
Swaraj, Poona	Marathi	78,912

Fortnightlies and Monthly Magazines with circulation of 25,000 and above

Name and place of Publication	*Language*	*Circulation*
Femina, Bombay (F)	English	1,15,886
Filmfare, Bombay (F)	,,	1,27,709
Madhuri, Bombay (F)	Hindi	97,240
Mirror, Bombay (M)	English	30,415
Navaneet (M)	Hindi	n. a.
Sarika, Bombay (M)	,,	30,678
Science Today, Bombay (M)	English	54,596
Star and Style, Bombay (F)	,,	78,690

Note: Average Circulation Jan. - June 1974
Source: *ABC. (F) Fortnightly. (M) Monthly.*

Tourism

Maharashtra especially Bombay is the Gateway of India and occupies an important position in the tourist traffic of India. Places of interest are:

Ajanta and Ellora, near Aurangabad in Maharashtra, contain some of the most beautiful rock-cut caves in India. The Ajanta caves about 66 miles from Aurangabad number 29 and were originally Buddhist shrines and monasteries built as far back as the 2nd century B C. They present a unique combination of painting, sculpture and architecture covering a period of some nine centuries, from the 2nd century B. C.

Ellora caves, 34 in number are about 15 miles from Aurangabad and comprise Hindu, Jain and Buddhist shrines. The Kailash temple (Hindu) is the finest of the Ellora group and the biggest cave temple in India.

Aurangabad, in Maharashtra, apart from its proximity to the Ajanta and Ellora caves and the Doulatabad fort, has many historical monuments of its own like Bibi-ka-Muqbara, the tomb of Aurangzeb's wife which is an imitation of the Taj, and Panchakki (old water mill).

Bombay, the capital of Maharashtra, and the Gateway of India, is one of the finest harbours in India and a leading centre of finance and industry Places of interest are: the Gateway of India, Apollo Bunder, Prince of Wales Museum, Victoria Terminus of the Central Railway, Brabourne Stadium, Malabar Hill, Hanging Gardens and Kamala Nehru Park, Victoria Gardens and Albert Museum. There are also a number of places near Bombay that are tourist attractions. Among them are Juhu (Beach), Vihar Lake (the city's source of watersupply), Kanheri rock cut caves, Vajreshwari temple and hot springs, Nirmal temple and lake, Pali hot springs, Elephanta Caves, Aarey Milk Colony, Oil refineries at Trombay and the Atomic Energy Centre, also at Trombay.

Doulatabad, in Maharashtra, near Aurangabad, has a rock-hewn 12th century fortress. Close by is the tomb of the Moghul emperor Aurangazeb

Mahabaleswar is a hill station in Maharashtra. It is a place of exquisite scenic beauty and is near to places of historical interest like Kamalgarh, Makrandgarh, Pandavgarh, Pratapgarh and Raigarh—the forts of the great Maratha leader Shivaji, the Bhavani temple, and the tomb of Afzulkhan, the Moghul General.

Matheran is a minor hill station and the nearest to Bombay.

Nasik, in Maharashtra and 117 miles from Bombay is a place of pilgrimage for Hindus It is famous for its rockcut Buddhist temples of the first century B. C. and after.

Pandharpur, a town in the Sholapur district stands on the Bhima river and is a place of pilgrimage for Maharashtra Hindus.

Poona, in Maharashtra, and 120 miles from Bombay, was the capital of the Peshwas of Maharashtra. Places of interest in and around Poona are: Shanwar Wada, the National Chemical Laboratory, the Defence Academy and the Central Water & power Research Station at Khadakvasla, Sinhagad Purandar, and the Antibiotic factory at Pimpri.

Sevagram, near Wardha, is the village where Mahatma Gandhi founded his ashram.

MANIPUR

Area:	22,356 sq km.
Population:	1,072,753
Principal Language.	Manipuri and English†
Capital:	Imphal
Governor:	L. P. Singh
Chief Minister:	Y. Shaiza
Chief Justice:	(See Assam)

Physiography

Manipur lies on the north east boundary of India, south of Nagaland and bordering Burma. It is a central valley of about 700 sq. miles in area 2,600 feet above the sea level, shut in on all sides by high rising hills, (some of them well over 6,000 feet), which cover the rest of the State. The climate is temperate in the valley but cold in the surrounding hills. The rainfall on the average is 65 inches in a year.

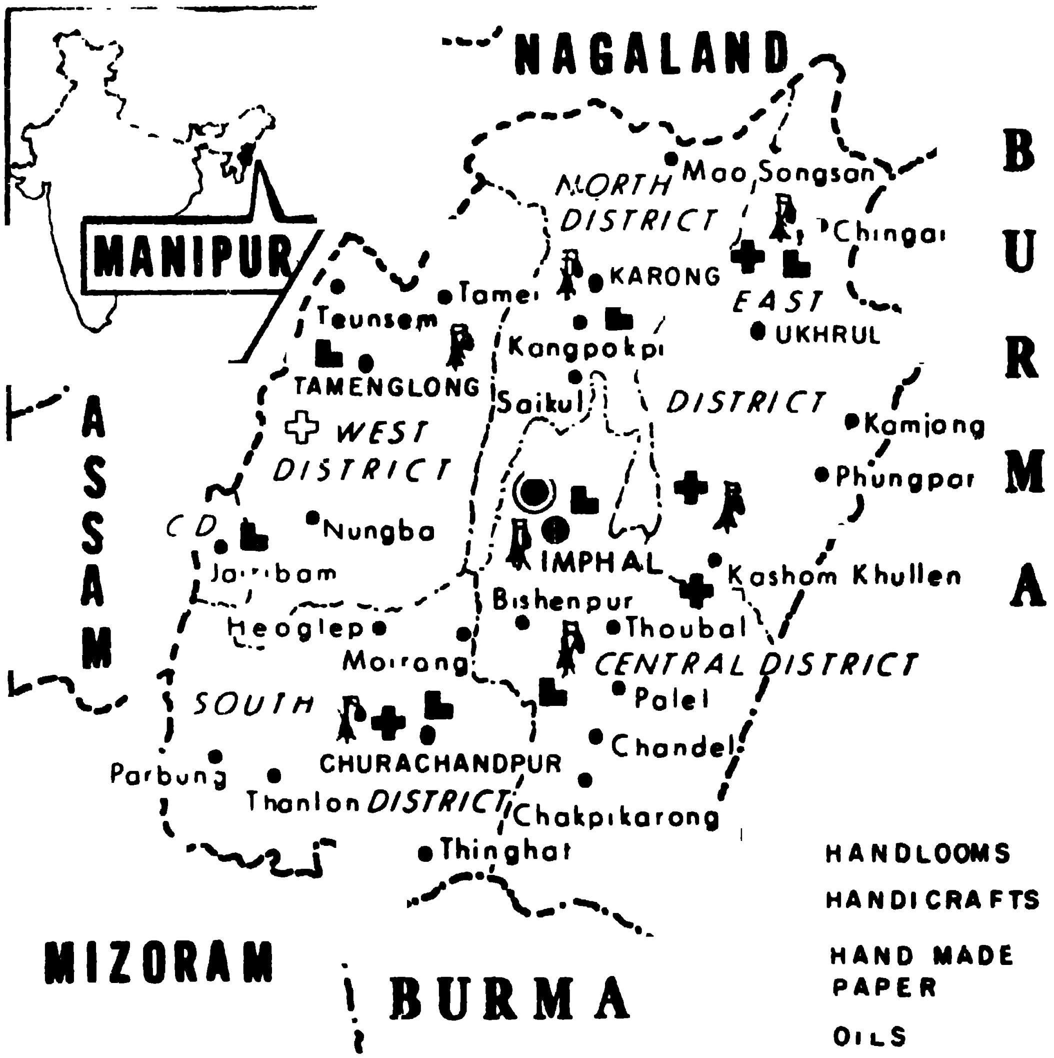
Historical Background

Manipur was originally a Princely State, under the protection of the Government of India, but was taken over as a Territory of the Indian Union, under a

---

† Manipuri and English are the official languages of the State, but several dialects are spoken. Hindi is being popularised.

(See also map of North East Area, pp. 451)



MANORAMA YEAR BOOK - 1975

merger agreement in 1949. Manipur became a full-fledged state on January 21, 1972.

Table 241

Population According to Religion in Manipur (Census, 1971)

	Year 1961		*Year 1971*		
Religion	*Population*	*% to population*	*Population*	*% to population*	*% variation 1961-1971*
Hindus	481112	61- 68	632597	56.97	31 49
Muslims	48588	6 23	70969	6.62	40.06
Christians	152043	19.49	279243	26.03	23 66
Shikhs	523	0 07	1028	6 09	96 56
Jains	778	0 10	1408	0 13	80.98
Buddhisis	325	0.04	495	0 05	52 31
Others	96668	12.39	87013	8 11	(-)9.99
Total:	780037	100.00	1072753	100.00	37.53

Administration

Manipur, is a member State of the North Eastern Council. The State has a unicameral legislature--the Legislative Assembly—consisting of 60 members. The State is divided into five districts

Table 242

Area and Population

District-wise Area, Population and Density of Population

(1971 Census)

Districts	*Area (sq. km.)*	*Population*	*Head quarters*
Manipur North	3,417	104,175	Karong
Manipur West	4,344	44,975	Tamenglong
Manipur South	4,581	98,114	Churachandpur
Manipur Central	2,230	724,537	Imphal
Manipur East	4,409	62,229	Ukhrul
Tengnoupal District	3,375	38,723	Chandel

Economic Structure

During the 23 years of central rule, Manipur as a union Territory remained neglected. Even its flourishing handloom industry has fallen on evil days. Though 2 lakhs of looms are supposed to exist, many of them are not working.

Table 243

Some Basic Facts

	Manipur	*India*
Percentage to working force (1971)		
a) Cultivators	66 8	43.3
(b) Agricultural labourers	3 6	26.3
(c) Non-agricultural workers	29 6	30.4
Percentage of villages electrified as on March 31, 1974	11 6	27.3
Per capita value added by manufacture in Rs (1969)	1	48
Bank offices per lakh of population (December-end 1973)	0 8	3.0
Per capita income in Rs (1970-71)	393	633

The economic structure of the state is dominated by agriculture as the following table shows:

Table 244

State Domestic Product of Manipur by Industrial origin at constant (1960 61) Prices.

(Rs. in lakhs)

Industry	*1970-71*	*1971 72*	*1972 73**
Agriculture including Livestock	862.9	960.1	792.5
Forestry and logging	33.9	24 4	24 8
Fishing	27.3	32.8	27·3
Mining and quarrying	0.1	0.1	0.1
Large scale manufacturing	--		—
Small scale manufacturing	146.0	151.6	157.5
Construction	40.7	43 7	47 0
Electricity, gas and water supply	15 6	17.7	19.9
Transport & Communication	35 1	42.5	48.5
Trade storage, hotels and restaurants	248.1	257.3	266 6
Banking & Insurance	20.3	21.1	21.1
Real Estate and ownership of dwelling	127.9	135.5	142.6
Public Service	121.7	120.9	124 4
Other Services	157.2	160.5	169 2
Total Net SDP	1836.8	1967.9	1840.6

* Provisional

Source: Estimates of State Domestic Product, Manipur.

Agriculture maintains 67 per cent of the population Rice is the principal crop but wheat and maize are also grown. The production of foodgrains increased from 1.67 lakh tonnes in 1970-71 to 2·66 lakh tonnes in 1973 74.

Manipur is well situated for the development of horticulture owing to its climate and elevation. The horticultural products now in production are pine apple, oranges, mangoes and guavas

Table 245

Net value of Output in Agriculture at Current Prices.

Rs. in lakhs

Particulars	*1970-71*	*1971-72*	*1972-73†*
Gross Value of Output	2436.8	2854.8	3707.6
Agriculture (proper)	2044.3	2447.7	3295.4
Livestock	392.5	407.1	412.2
Less deduction	384.4	415.9	469.3
Net value of output	2052.4	2438.9	3238.3

† Provisional

Source: Estimates of state Domestic Product, Manipur.

Animal Husbandry

Table 246

Livestock Census, 1972

Category	*Total*
Cattle	305270
Buffaloes	61030
Sheep	2092
Goats	16386
Total Horses and Ponies	824

Forests cover more than a quarter of the total area of state. The forests are rich in hard wood like teak or gurjan and soft wood of different varieties Bamboo and cane grow in aboundance everywhere.

Table 247

Net value of Output from Forestry and Logging at Constant Prices.

(Rs. in lakhs)

Particulars	*1970-71*	*1971-72*	*1972-73†*
Industrial wood	27.0	18.0	14.5
Fuel wood	4.8	4.3	7.8
Minor forest produce	3.9	3.4	3.8
New Plantation	—	—	—
Gross value of output	35.7	25.7	26.1
Less deduction	1.8	1.3	1.3
Net value output	33.9	24.4	24.8

---

† Provisional

Source: Estimates of State Domestic Product, Manipur.

Fisheries. Despite the lack of a seaboard or riverine estuary, fishery is well developed in the state in ponds, lakes, rivers and irrigation channels. This is because, fish is an important item in the diet of more than 75 per cent of the population The fish production in 1973-74 is estimated at 1,200 tonnes.

Table 248

Net value of Output from Fishery at Constant Prices.

(Rs. in lakhs)

Particulars:	*1970-71*	*1971-72*	*1972-73*
Gross value of output	30.0	36.0	30.0
Deduction	2.7	3.2	2.7
Net value of output	27.3	32.8	27.3

† Provisional

Source: Estimates of state Domestic Product, Manipur.

Literacy and Education

Manipur ranked 9th among the States and Territories of India in literacy in 1961, but has slid down to 13th rank in the 1971 census with 32.9 per cent. The reasons are obscure.

The educational institutions and enrolment as in 1973 are shown below:-

Table 249

Education	*Institutions*			*Scholars*
Pre Primary/Primary J. B./U J B Schools	(a)	Boys	3073	112,300
	(b)	Girls	360	64,700
Middle/Sr. Basic Junior High Schools	(a)	Boys	422	31,600
	(b)	Girls	33	16,800
High/Higher Secondary/Multipurpose Schools	(a)	Boys	138	32,700
	(b)	Girls	22	16,500
Colleges (General)	(a)	Boys	14	9,845
	(b)	Girls	2	4,148

Source: Director of the Education, Manipur.

Power. The total installed capacity of power in March 1973 was 6.70 MW through the various hydel and thermal stations. This is expected to be 10.51 MW by the end of the Fourth Plan. Manipur had only nine electrified villages before the First Plan; the number had increased to 213 by March 1973.

Power (1972 73)

Installed capacity KW	7600
Generation (lakh KWH)	128 83
Consumption	89.23
Towns/villages electrified (No.)	213

Industry. Manipur has no large scale industries at present, Handloom weaving is the largest single cottage industry. Other cottage industries are sericulture, bamboo and cane articles, carpentry, blacksmithy and leather goods, edible oil crushing and rice milling. A Khandsari sugar factory has already gone into production.

Table 250

Public Health

Hospitals, Dispensaries and Patients Treated

		1965	*1966*	*1967*	*1968*	*1969*	*1970*
1	Hospitals (including PHCs')	24	24	24	25	25	26
2.	Dispensaries (including PHcs')	95	97	97	97	97	98
3.	Beds Available	514	514	534	842	832	832
4	Patients Treated						
(a)	Indoor	3,272	2,397	5,248	8,573	8,259	10,510
(b)	Outdoor	39,060	59,682	58,668	67,324	173,800	340,729
(c	Total	42,332	63,079	63 916	75,897	189,059	351,239
5.	Persons employed						
(a)	Doctors	55	65	80	82	00	114
(b)	Nurses, Midwives and Dias	167	168	188	218	265	303

Source: Medical Directorate, Manipur.

MEGHALAYA

Area:	22,489 sq. km.
Population:	1,011,699
Principal Languages:	Khasi, Jaintia and Garo
Capital:	Shillong
Governor:	L. P. Singh
Chief Minister:	Capt. W. A. Sangma
Leg. Assembly Speaker:	R. S. Lyngodh
Chief Justice:	See Assam

Meghalaya,* literally 'the abode of the Clouds' (Megh=cloud, Alaya=abode) was inaugurated as an autonomous unit by Prime Minister Indira Gandhi on April 2, 1970. It was declared a State of the Indian Union on Jan. 21, 1972.

Physiography

This exclusive tribal State of the Garos and the Khasis is a mountain region. Shillong, the capital of Meghalaya, is situated in the centre of a high plateau The biggest peak in the State is the Shillong peak, 6,450 ft. in height. Nokrek in the Garo Hills district is the next highest.

A number of rivers none of them navigable, drain this mountainous area. Krishnai (Damring , Kalu (Jira), Bhugai (Bugi), Nitai (Dareng) and Someswari (Simsang) flow through Garo Hills district while Jadukuta (Kynshi), Um Maopa, Mahesh Kali (Umngot)' and Bogapani flow among Khasi and Jaintia Hills. Kapili, named after the Hindu sage Kapila is the most important river of the Khasi area, with three tributaries Ka-Khri, Digri and Umiam. All these rivers with rocky beds and swift currents abound in cataracts and waterfalls. The most important waterfall is the one at Mawsami, near Cherrapunji. Here, the waters of several rivulets are precipitated over a sheer cliff several hundred feet high.

Cherrapunji has the reputation of being the rainiest spot in the world Actually, it is at Mawsyrnam, a few miles from Cherrapunji, where the rains record the maximum fail In 1956, Mawsyrnam recorded a rainfall of 18,145 mm. The average rainfall here about is 490 inches. The rainfall in Shillong, the capital, is much less with an average of 85 inches annually, while Tura, the headquarters of the Garo district experiences a rainfall of 125 inches. The rainy season opens in May and lasts upto August.

---

* See also map of North East Area pp. 451.

' The names in brackets are tribal names.

Meghalaya, known as the Scotland of the East is a country of surpassing scenic beauty. Waterfalls and mountain lakes, rising peaks and billowing hills, meadows, valleys and rushing rivers combine to make a rich panorama.

The People. The Khasis and Garos are very ancient tribes, who had settled in Assam in remote times. They number about eight lakhs.

The Khasis were the first to come. They came from the east, Cambodia (now Khmer Republic), Malaysia and Burma. They had been living in their hill district for a long time before the British recognised the semi independent status of their chiefs, called Siams The Garos or *Achiks* as they prefer to call themselves, probably a part of the Bodo tribe, came through Tibet and in course of time absorbed the culture of the Khasis. Both these people are divided into several tribes and speak languages akin to Tibeto Burman.

The most interesting feature of these hill people, their practice of matriarchy, distinguishes their social organisation from the rest of India According to this all relationships are traced through the mother. She inherits the land and passes it on usually to her youngest daughter, whose husband, called *nokma*, is expected to live with the parents-in-law and to look after them in their old age. The husband is sought from the mother's line, usually the maternal uncle's son.

The parents, boys under six and the girls live under the same roof. The older boys are sent away to live in a house called *nokpante* which serves as bachelor's quarters, but they work on the land for the family The essence of the whole system is that land property passes down undivided through a daughter Like tribals elsewhere in the country, the whole family engages in *jhumming* or shifting agriculture whenever required.

The tribal lives simply in his cottage, often constructed on a bamboo *machang*, wears a garment or two to cover his body and a *puggry* to cover his head. He rears fowls and pigs and cattle, the latter more for meat than milk He is fond of his rice beer. When he falls seriously ill, he depends on the priest to drive away the devil's wrath by his elaborate ritual and sacrifice. And above all, the throughly enjoys himself by drinking and dancing on the weekly market days as also on the occasion of fairs like wangala. He believes in God, good and bad spirits and rebirth. His tolerance is best displayed by the fact that while mothers and father are themselves content to live in their old conservative ways, they do not mind their children becoming converts to Christianity. The result of the cultural influence can be observed in the pace of change which is making its appearance

Administration

Meghalaya, like Manipur, is a part of the North East Area and a constituent of the North East Council The State has a unicameral legislature, the Legislative Assembly consisting of 36 members, 15 from the Garo Hills and 21 from the United Khasi and Jaintia Hills.

The State is divided into two regions - the Garo Hills and Khasi and Jaintia Hills. The total number of inhabited villages is 4,629 and uninhabited villages 399. There are five towns in the State (1) Shillong-the capital of Meghalaya and the headquarters of Khasi Hills district, (2) Tura-headquarters of Garo Hills district, (3) Jowai headquarters of Jaintia Hills district, (4) Mawlai and (5) Nongthymmai The last two are in fact suburbs of the State Capital.

The State is divided into three districts

Table 251

	District	*Area (Sq. km.)*		*Population (1971 census)*	*Head-quarters*
1	Jaintia Hills	3,863	14,405	605,084	Jowai
2	Khasi Hills	10,529			Shillong
	Shillong	13			
3	Garo Hills	8,084		406,615	Tura

Table 252

Economic Structure

Some Basic Facts

	Meghalaya	*All India*
Percentage to working force (1971)		
(a) Cultivators	69 1	43 3
(b) Agricultural labourers	9.8	26.3
(c) Non-agricultural workers	21 1	30.4
Percentage of villages electrified as on March 31, 1974	2.3	24 6
Per capita value added by manufacture in Rs (1969	N.A	48
Bank offices per lakh of population (December-end (1973)	1.8	3.0
Per capita income in Rs (1970-71	N.A	633

Agriculture. The majority of the people epends on land for their livelihood. But the potential for agricultural expansion is very limited in Meghalaya as 5 per cent of the land is barren. The ystem of jhum (slash and burn) cultivation is the greatest enemy of agricultural production This results in wide spread erosion of arable lands and extensive destruction of virgin forests. When the area is cleared for cultivation by felling the trees and burning up the vegetation, it is abandoned after a crop or two and fresh areas taken up. This goes on *ad infinitum.*

The general diet of the people is rice, maize, dried fish and meat. Rice is the principal cereal. It is cultivated in 87,020 hectares. Other crops are potatoes, oranges, pineapples, plums, apricots and other fruits and vegetables of all kinds.

Animal husbandry. Cattle are raised more for their meat than for milk. In 1966 Meghalaya had 414,737 cattle of which, buffaloes numbered 38,021, sheep 20,672 and goats 99,697. With 108,316 pigs and 9,371 horses and ponies the total livestock came, to 690,847 Poultry alone numbered 1,043,023.

Forests. Meghalaya is rich in forests. The total forest area is 280.8 thousand acres. Production of timber amounted to 339,000 c. ft, and firewood 155,000 c. ft. in 1965-66. Minor forest produce was valued at Rs. 254,000. The principal timber species are sal, gurgra, haldu, dalu and pine. Birch, schuma oak, beech and magnolia are also found.

Minerals. The State has immense mineral wealth. The major portion of coal reserves in Assam, estimated at well over 4,500 million tonnes lies in Meghalaya. Meghalaya coal has very low ash content. The low ash content itself contains many unusual metals like germanium and other rare earths. As against a low ash content, coal of Meghalaya has a high sulphur content which makes it ideal for use in blast furnaces.

Limestone deposits are found both in Garo Hills and Khasi Hills With such extensive deposits, there is at present only one cement factory working--Assam Cements Ltd. Other factories are being planned. India's only sillimanite mine is situated in Khasi Hills Preliminary surveys have shown the availability of China clay, fireclay, flourspar, felspar, copper pyrite, vermiculate, silica, kaolin and even gold in Meghalaya. Oil has also been found at the foot of the Shillong plateau near the Khasimara river and Narpuh reserve forest. All these await exploitation.

Power. Meghalaya has ample hydel resources. The first hydroelectric project in India was started at Cherrapunji in Meghalaya in 1901. The commercial power projects are (1) Umtru hydel project in Khasi Hills with an installed capacity of 8,400 kW (2) Umiam hydroelectric project with an installed capacity of 36,000 kW and (3) Naharkatya Thermal Station with a total capacity of 69,000 kW

Literacy and Education

Meghalaya with 29 49 per cent literacy, is just above the national average

Educational Institutions. No. of Colleges' 14, including one Law College and one Teachers Training College. Technical School: 1; High Schools: 81; Middle English Schools: 211; Senior Basic Training Schools: 4; Lower Primary Schools: 2,528; No of Pupils: 132,918 (Boys: 70,231, Girls 62,687). In 1961 there were 1,799 schools ranging from nursery grade to higher secondary grade and 14 schools of techinical education.

Tourism

Though the State as a whole, is like Kashmir, a tourist show piece, the capital Shillong deserves special mention.

NAGALAND

Area:	16,572 sq km.
Population:	516,449
Capital:	Kohima
Principal Language:	English and Naga†
Governor:	L. P. Singh
Chief Minister:	T. Vizol Angami
Legislative Assembly Speaker:	K W. Kiditsu
Chief Justice:	(See Assam)

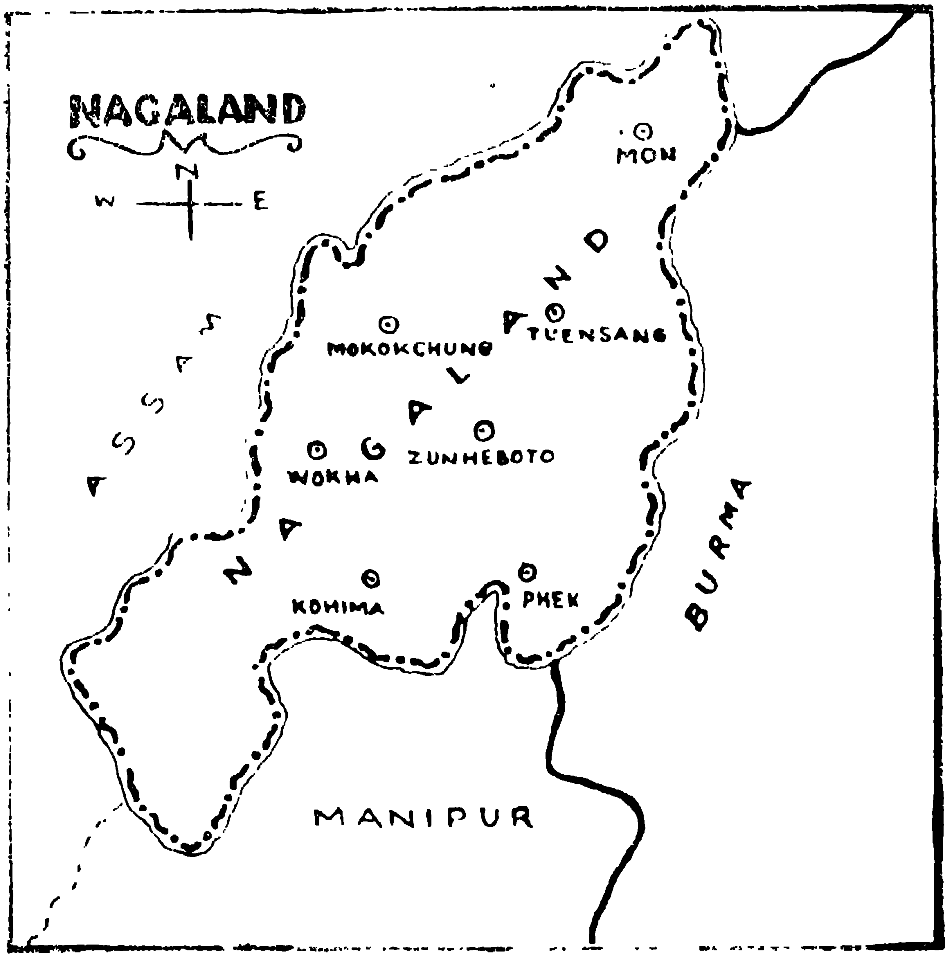
Physiography††

The State of Nagaland is a narrow strip of mountainuos territory, between the Brahmaputra valley of Assam and Burma. On the east it shares the international boundary with India. On all other sides it is bounded by Indian territory - Manipur on the south, Assam on the west and north, and Arunachal Pradesh on the north east

Excepting some areas in the foot hills, the State is mountainous. Saramati the highest peak is 12,600 ft. high and Kohima the capital, is 4,800 ft. above the sea level. The main rivers that flow through the State are Dhansiri, Doyang, Dikhu and Jhanji. The State is inhabited by hill tribes, the chief of whom are Angami, Sema, Lotha, Ao, Rengma, Chakhesang, Sangtam, Konyak, Chang, Phom, Yimchunger, Khemnungan and Zeliang-Kuki

Formation of the State

The Nagaland State comprises the former Naga Hills district of Assam and the former Tuensang Frontier division of the North East Frontier Agency. These had been made a Centrally Administered Area in 1957, administered by the President through the Governor of Assam



---

† In 1967 Nagaland Legislative Assembly adopted English as the official language. The tribal Language of the Nagas is commonly spoken along with Assamese.

†† See also map of North East area.

The Territory was riven by strife between contending parties, some of whom were being egged on by foreign powers to demand complete independence. This, of course, meant secession from the Indian Union. This was opposed by the moderate elements who were satisfied with autonomy within the framework of the Indian Union. The secessionists remained an underground party. However, in January 1961, the Government of India conferred the status of a State on Nagaland. The State of Nagaland was officially inaugurated on 1st December 1963.

Administration

Legislature. The State has a unicameral legislature–the Legislative Assembly–consisting of 52 members It is divided into seven districts.

Table 253

Districts	*Area (Sq. Km.)*	*Population (1971-Census)*	*Head-quarters*
Kohima	7209	1,30,610	Kohima
Phek		44,594	Phek
Mokokchung	3852	83,852	Mokokchung
Zunheboto		17,093	Zunheboto
Wokha		38,297	Wokha
Tuensang	5466	1,08,763	Tuensang
Mon		64,140	Mon

Source: Dept. of Planning, Nagaland.

Table 254

Economic Structure

Percentage to working force (1971)		
(a) cultivators	77.5	43.3
(b) Agricultural labourers	1 5	26.3
(c) Non-agricultural workers	21.0	30.4
Percentage of villages electrified as on March 31, 1974	16.7	27.3
Per capita value added by manufacture in Rs. (1969)	N.A	48
Bank offices per lakh of population (December-end 1973)	1.2	3.0
Per capita income in Rs (1970 71)	N A	633

Agriculture. Although agriculture is the mainstay of the people of Nagaland, only 2,666 sq miles of land is available for cultivation out of the total area of 6,366 sq. miles. Considering the hilly terrain this does not appear very bad but the main drawback is the shifting cultivation, resulting in soil erosion and reduction of fertility. In Mokokchung and Tuensang areas, 80 per cent of the land is under shifting cultivation, whereas it is only 20 per cent in the Kohima area

Table 255

1972–73

A	**Area under orchard**		
	1. Net cropped area	1738	hectares
	2. Gross cropped area	1738	„
B	**Area under Food Crops**		
	1. Rice	61,000	„
	2 Maize	10,000	„
	3. Misc. Crops (food)	30,000	„
C	**Total Irrigated area**	31,794	„
D	**Area under High Yielding Variety**		
	1. Paddy	495	„
	2. Maize	100	„
E	**Food grains Production**		
	1 Kharif	75,680	M.T.
	2. Rabi	1,160	M,T.

Source: Department of Planning Nagaland.

Animal Husbandry. In Nagaland, every family owns a few pigs, some poultry and cattle, as meat forms the main item of food. Along with the gradual urbanization, the demand for milk and eggs has been also increasing.

Though Nagas are fond of keeping domestic animals and birds, livestock is of a non descript type having poor productivity. The State is encouraging better breeds of cattle and poultry. There are three state farms each for poultry, pigs and cattle

Forests The State of Nagaland is estimated to have an area of 2,897 sq km. under forests, which is only 17 6 per cent of the total area

Out of this forest area, only 1 9 per cent (397 sq. km) is under reserved forests and distributed in 4 blocks, 3 in Kohima district and one in Tuensang district and about 3 1 per cent (518 sq km) under protected forests, mostly in Mokokchung district. The remaining 12.6 per cent (2,072 sq. km.) of forests consists of communal forests.

Power is short in Nagaland. At present, the total installed capacity is 7.3 MW Electrification, however, is progressing. Out of 814 villages in Nagaland, the villages and towns electrified numbered 82 in 1971 compared to nil in 1951.

Industry. Nagas have an artistic hand in many crafts. Carving of beautiful designs with their simple equipments like dao, home-made colours and pieces of bamboo was practised mostly for domestic and local requirements.

During the last one year, Nagaland has achieved remarkable progress in small scale and medium industries. Big Industries are also taking shape in the state.

Total licenses issued during the year were 280 for setting up new factories. This raises the total number of licenses, so far issued to 1252. Among the new industries are plastic mouldings, hume pipes, polythene bags, and rubber chappals.

Some of the bigger industrial units in operation are listed below:-

Table 256

	Name of the Industries	*Capacity*	*Total Project Cost*
1	Nagaland Pulp and Paper Mill	100 Tonnes per day.	55.43 Crores
2	Nagaland Sugar Mill Co. Ltd	1000 to 1250 M T. per day.	4.40 ,,
3	Distillery Project	1000 to 1200 M. T. per day.	0.41 ,,
4	Plywood Factory	15 lakh Sq. Metres per annum	0.50 ,,
5	Fruit Presevation & Canning Centre.	1 M. T. per day	0.12 ,,

Source: Department of Planning, Nagaland

Literacy and Education

Nagaland ranks below Meghalaya in literacy, with 23.4 per cent literates, as against Meghalaya 20.49 per cent. But progress is being more in education.

Table 257

	Institutes	*Education Nos.*
1	L. P. Schools	978
2	M. E. Schools	216
3	High Schools	65
4	Colleges	4
5	Polytechnic	2
6	Teachers Training Centres	3
7	Adult Literacy Centres	161
	Students	
	Primary Schools	72,000
	M. E. Schools	21,000
	High Schools	9,700
	College	2,100

Source: Department of Planning, Nagaland.

ORISSA

Area:	155,845 sq. km.
Population:	21,944,615
Principal Language:	Oriya
Capital:	Bhubhaneswar
Governor:	Akbar Ali Khan
Chief Minister:	Smt. Nandini Satpathi
Leg. Assembly Speaker:	Brij Mohan Mahanti
Chief Justice:	G. K. Misra

Physiography

Orissa lies on the east coast of India It is surrounded by West Bengal in the north-east, Bihar in the North, Andhra Pradesh on the south east, Madhya Pradesh on the west and Bay of Bengal on the east. The whole State lies in the tropical zone and is divided into four distinct tracts, namely the northern plateau, the eastern ghats, the central tract and the coastal plains. The State is drained by three great rivers the Mahanadi, the Brahmani and the Baitarani and 8 lesser rivers, all of which flow into the Bay of Bengal.

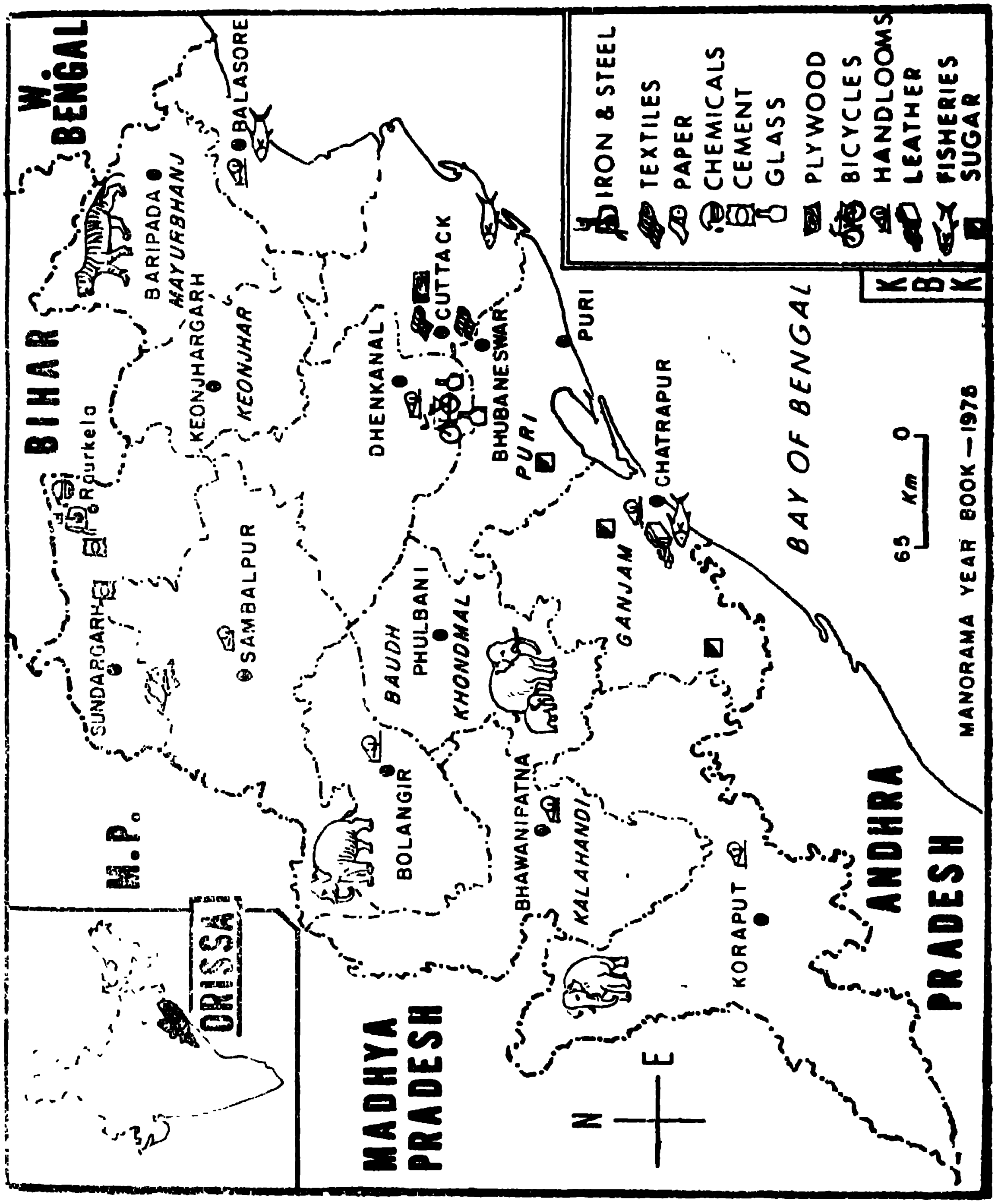
The biggest and the most famous lake in Orissa is the Chilku Lake Originally, it was part of the Bay of Bengal, but was subsequently closed up by sand dunes. It is 64 kms long and 16 to 20 km wide. There are two beautiful islands in the lake *Parikud* and *Malud.* Two other lakes call for mention, the Ansupa Lake (Cuttack dist.) about 5 kms long and 1.6 kms broad, and the Sara Lake, about 5 kms long and 3 kms wide.

Orissa has an equable climate, neither too hot nor too cold. In some places however, extremes of climate are experienced namely, in the western districts of Bolangir, Sambalpur and Sundargarh The average rainfall in the State is 150 cms. There is no desert or semi desert area in the State.

History

Orissa, the land of the Oriyas was known as Kalinga in the ancient days. As Kalinga it finds mention in the epics. In the third century B C Asoka the Mauryan emperor, sent a powerful force against Kalinga which offered stubborn resistance. Kalinga was subdued, but the carnage which followed struck Asoka with remorse. He renounced war and decided to conquer the hearts of men with piety instead of conquering their countries with arms. After the death of Asoka, Kalinga regained its independence. In the second century B C Kalinga became a powerful country under its ruler Kharavela. With the death of Kharavela, Orissa passed into obscurity. In the 4th century A D Samudragupta set out on his conquest of the south from Magadha. He invaded Orissa, which lay astride his path and overcame the resistance offered by five of its kings. In A D 610 Orissa came under the sway of King Sasanka. After Sasanka's death Harsha conquered Orissa.

The country had its own independent dynasty of rulers in the 7th century A D. In A D 795 Mahasivagupta Yayati the Second, came to the throne and with him



began the most brilliant epoch in the history of Orissa. He united Kalinga, Kangoda, Utkala and Kosala in the imperial tradition of Kharavela. He is believed to have built the famous Jagannatha Temple at Puri. Under the kings of the Ganga dynasty, Orissa continued to flourish. Narasimha Dewa of this dynasty is reputed to have built the unique temple of the Sun at Konarak.

From the 14th century, Orissa was ruled by successive Muslim kings till 1592, when Akbar annexed it to the Mughal Empire. With the decline of the Mughals, the Marathas occupied Orissa, who continued to hold it till the British took over in 1803.

Orissa was made into a separate State in 1936. With Independence, the Princely States in and around Orissa, surrendered their sovereignty to the Government of India. By the States Merger (Governors, Provinces) Order 1949, the Orissa Princely States were completely merged with the State of Orissa on 19th August 1949.

Administration

Legislature: The legislature is unicameral- the Legislative Assembly consisting of 147 members.

Table 258

	District	*Area (sq. kms.)*	*Population (1971 Census)*	*Headquarters*
1	Balasore	6493	1830504	Balasore
2	Boudh Khandmals	11090	621675	Phulbani
3	Bolangir	8836	1263657	Bolangir
4	Cuttack	10904	3827678	Cuttack
5	Dhenkanal	10945	1293914	Dhenkanal
6	Ganjam	12238	2293808	Chhatrapur
7	Kalahandi	11595	1163869	Bhawanipatna
8	Keonjhar	8331	955514	Keonjhar
9	Koraput	27192	2043281	Koraput
10	Mayurbhanj	10416	1434200	Baripada
11	Puri	10474	2340859	Puri
12	Sambalpur	17520	1844898	Sambalpur
13	Sundargarh	9811	1030758	Sundargarh

Population of Scheduled Castes and Scheduled Tribes together account for 8.38 million out of a total of 21.94 million people.

Economic Structure

Table 259

Some Basic facts

	Orissa	*All-India*
Percentage to working force (1971)		
(a) Cultivators	49.2	43.3
(b) Agricultural labourers	28.3	26.3
(c) Non-agricultural workers	22.5	30.4
Percentage of villages electrified as on March 31, 1974	18.5	27.3
Per capita value added by manufacture in Rs (1969)	21	48
Bank offices per lakh of population (December-end 1973)	1.1	3.0
Per capita income in Rs. (1969-70)	467	597

Table 260

Principal Crops Area & Production (1972–73)

Crops	*Area (Hect.)*	*Prod.('000 tonnes)*	*Yield per hect. kg.*
Rice	4455	3978 5	893
Ragi	149.3	139 4	934
S. Millets	187.1	94.4	505
Total pulses	842.5	390 8	464
Nigerseed	91.1	35.3	496
Turmeric	13.2	13	985
Tobacco	15	12.1	807

Source: Ministry of Agriculture, New Delhi

Agriculture: The agricultural sector in Orissa contributes 57 per cent to the State income and employs 77 per cent of the working population. The cultivated area comprises 58 lakh hectares which is about 37.5 per cent of the land surface of Orissa. The gross croped area is about 69 lakh hectares, more than 80 percent of which is unirrigated. Rice is the most important crop. The State contributes about one-tenth of the rice produced in India. Other important crops are pulses, oil seeds, jute and mesta. sugarcane, coconut and turmeric. Production of cereals in 1970-71 went up to 46 37 lakhs M. T, oil seeds to 1.79 lakh M.T. Sugarcane to 1.63 lakhs M.T and jute and mesta to 3.28 and 1.52 lakh bales respectively:

Irrigation. Out of a total Cropped area of 69.36 lakh hectares, 12.61 lakh hectares were irrigated in 1972-73. Total area irrigated in 1973-74 is 16·50 lakh hectars.

The irrigation Schemes now under construction are expected to enhance the gross irrigated area to about 30 lakh hectares by the end of the Fifth Five Year Plan ('78—'79).

Table 261
Irrigation Projects

Name and Description	*Benefit area (in hectares)*
Hirakud, Dam across the river Mahanadi. 9.7 km. from Sambalpur Rly. station.	496,567
Mahanadi Delta, A weir across the river Mahanadi at Mundali, 4.8 km. upstream of Naraj in Cuttack district.	68,071
Salandi. A dam at Hadgarh and a barrage at Bidyadharpur across the river Salandi.	61,903.8

Animal Husbandry

The state has a fairly big livestock population.

Livestock population

Cattle	1,06,27,747
Buffaloes	12,68,837
Sheep	11,81,885
Goats	30,81,139
Horses and ponies	66,616
Mules	1,100
Donkeys	14,095
Pigs	1,80,138
Total Livestock	1,64,21,557

Forests

Forests cover some 67463 sq. kms. which is a little over 40 per cent of the total State area. The forests are not dense everywhere. In most places, they are mere shrubberies. Excellent timber like sal, teak and rosewood are found in the forests. *Kendu* leaves used in making beedies. is the most important and profitable forest produce of Orissa. Lac, tussar silk and medicinal plants like *nuxvomica* and *ruowolfid* (serpentine) are other forest products. The revenue from forests (1970-71) was 738 lakhs rupees.

Minerals. Orissa's reserves of iron ore, manganese ore, chromite, limestone and graphite are among the very best in India. The Rourkela Steel Plant and Tata Iron and Steel depend entirely on Orissa's iron ore. The State is one of the largest producers of manganese ore, and account for nearly 20 per cent of the total production in India. Other minerals are coal, dolomite, bauxite, china clay, fire clay, kyanite, soapstone and mica.

Power. The total installed capacity (72-73) (hydel and thermal) was 563.376 MW. By the end of the 5th plan it would be of the order of 800 MW. The villages electrified increased to 4,162 in 1971-72, from a mere 25 in 1955-56. power operated lift irrigation schemes 1276 (by the end of 4th plan 73-74).

Table 262
Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Balimela (hydro). Storage dam near Balimela across the river Sileru, a tributary of Sabari river.	Stage I: Six units of 60 MW. each. Stage II: Two units of 50 MW each.	Whole State as the power generated will be fed into the State grid.
Machkund (H.E.)	(particulars are given under AP)	
Taicher (Thermal). Situated 3.2 km. from Taicher Rly. Station.	Four units of 62.5 MW each.	

Installed Capacity of Electricity (in MW) 1972-73)

Boards = 528.951 M.W.
Govt. = 34.425 M.W. (Machbkund)
Total 563.376 MW

Electricity Generated (in M.W.)
Board = 1693.460
Purchase
from Govt. 228.384 (Machhkund)
Total 1921.844

Factories:- Total No. of Registered factories using Power (72-73) - 1160

Total No. of Registered factories not using power - 109

Industries. Since Independence, the State has progressed in industries. About 35 large industries are now operating in the State, among which are Rourkela Steel plant, Barbil pig iron plant, ferrochrome, and ferro manganese plants, refractories, cement plants; paper mills, fertiliserplant, sugar mills etc.

Table 263

Literacy and Education

Orissa has a literacy percentage of 26.18, which is below the national average.

No. of Educational Institutions:- (Provisional - 70 - 71)

School for General Education:-

Higher Secondary	12
Post Basic	2
High School	1,572
Senior Basic	25
Middle School	4101
Junior Basic	357
Primary	27,160

School for vocational:-

Teacher's Training	28
Engineering and Technology	17
Commerce	3
Handicapped	2
Music and Dance	19
Adult education (1968-69)	440
Oriental Study	129
Social Workers Training	1
Physical Education	1
Others	35
First grade College	78

Institutions for Professional Educational

Medicine	4
Law	3
Agriculture	1
Engineering	3
Veterinary	1
Teacher's Training	35
Sanskrit	4
Music and Dance	2
Total	53

No. of Students (Provisional 1970 - 71)

Recognised University	1348
First Grade Colleges	38,017
Total	39,365

College for professional Education

Medicine (68-69)	2370
Law (68-69)	699
Agriculture (68-69)	520
Engineering (68-69)	2,077
Veterinary (68-69)	260
Teacher's Training (68-69)	3498
Sanskrit (68-69)	228
Music & dance (68-69)	322

School for General Education

Higher Secondary Post Basic High Schools	238,803
Middle	252,510
Primary	18,48,340
Total	23,39,653

Technical Education. There is one Regional Engineering College at Rourkela besides the University College of Engineering at Burla with an intake capacity of 200 and 180 respectively. There are 4 Polytechnics and one Mining Engineering School and one Polytechnic with an intake capacity of 995. A Polytechnic for women at Rourkela has started functioning.

Universities. 1. Berhampur University, Berhampur. (established under Orissa Act 21 of 1966)—has 16 affiliated colleges, 7 University departments with an enrolment of 6,678 and 231 respectively.

2. Utkal University, Bhubaneswar has 43 affiliated colleges and 20 teaching departments (including a law college at Cuttack and an Evening College at Bhubaneswar).

3. Sambalpur University, Sambalpur has 28 affiliated colleges.

4. Orissa University of Agriculture and Technology, Bhubaneswar has 4 constituent colleges.

Table 264

Newspapers (Dailies)

Name	*Place of publication*	*Language*	*Circulation*
Amrita Bazar Patrika	Cuttack	English	(Circulation included in the Calcutta Edition)
Samaj	Cuttack	Oriya	52,120†
Prajatantra	,,	,,	n. a.
Matrubhumi	,,	,,	n. a.
Swarajya	,,	,,	n. a.

---

† Average Circulation Jan. - June 1974
Source: ABC

Tourism

Important tourist centres are given below.

Bhubaneswar, the present capital of Orissa is known as the Cathedral City of India on account of its numerous temples. Places of interest are: Lingaraj Temple, Mukteshwar Temple, Parasurameswara Temple and Raj Rani Temple.

The Jain and Buddhist rock-cut caves of Khandagiri and Udayagiri and Asoka's Rock Edict at Dhauli are also near Bhubaneswar.

Konarak, in Orissa is about 41 miles from Bhubaneswar and 53 miles from Puri. It is famous for the great temple of Sun-god, also called the Black Pagoda. The temple was built to represent the celestial chariot of the Sun-god. Standing in lonely splendour among the sand dunes of the seashore, its greatness, now in ruins, reveals high excellence of conception and execution.

Puri (*Jagannath Puri*) is a coastal town in Orissa. It is about 39 miles from Bhubaneswar and is one of the four most holy places of pilgrimage in India—the three others being Badri-Kedarnath in the north, Rameswaram in the south and Dwaraka in the west. Every year, in the month of June, thousands of devotees from all over India arrive at Puri to participate in the car festival. During this festival the image of Jagannath is taken in procession in a huge chariot (the proverbial Juggernuat in English) drawn by ardent devotees. The presiding deities in the temple are Krishna (Jagannath), Balaram his brother and Subhadra their sister.

PUNJAB

Area:	50,362 sq. km.
Population:	13,551,060
Principal Language:	Punjabi
Capital:	Chandigarh
Governor:	Mahendra Mohan Choudhury
Chief Minister:	Giani Zail Singh
Leg. Assembly Speaker:	Kewal Krishnan
Chief Justice:	(See Haryana)

Physiography

Punjab is bounded on the west by Pakistan, on the north by Jammu and Kashmir, on the north east by Himachal Pradesh and on the south by Haryana and Rajasthan. Physically, the State may be divided into two parts, the Sub-Sivalik strip and the Sutlej-Ghaggar plain. The Sub-Sivalik strip covers the upper portion of Rupar, Hoshiarpur and Gurdaspur districts. The Sutlej Ghaggar plain embraces the other districts of Punjab. The land here is alluvival and highly fertile as they are formed by the tributaries of the Indus, Ravi, Beas, Sutlej and the river Ghaggar.

History

Punjab, the land of five rivers lies in the north west of India. Being in the way of invaders from the north. Punjab has had to take a lot of battering. The country emerges into history with the coming of the Aryans in to India about 2000 B C. The Aryans in the early vedic age apparently settled in Punjab and its neighbourhood. In 522 BC Darius of Persia conquered the territories round about Punjab and made them a Satrapy of Persia. In 326 BC, Alexander the Great overran Punjab. For a time, Macedonian governors controlled Punjab but they were defeated by Chandragupta Maurya, who annexed the entire territory. With the decline of the Mauryan empire, the Scythians occupied north west India and after them, the Parthians. The Kushans came next. Thereafter Punjab continued under indigenous rulers.

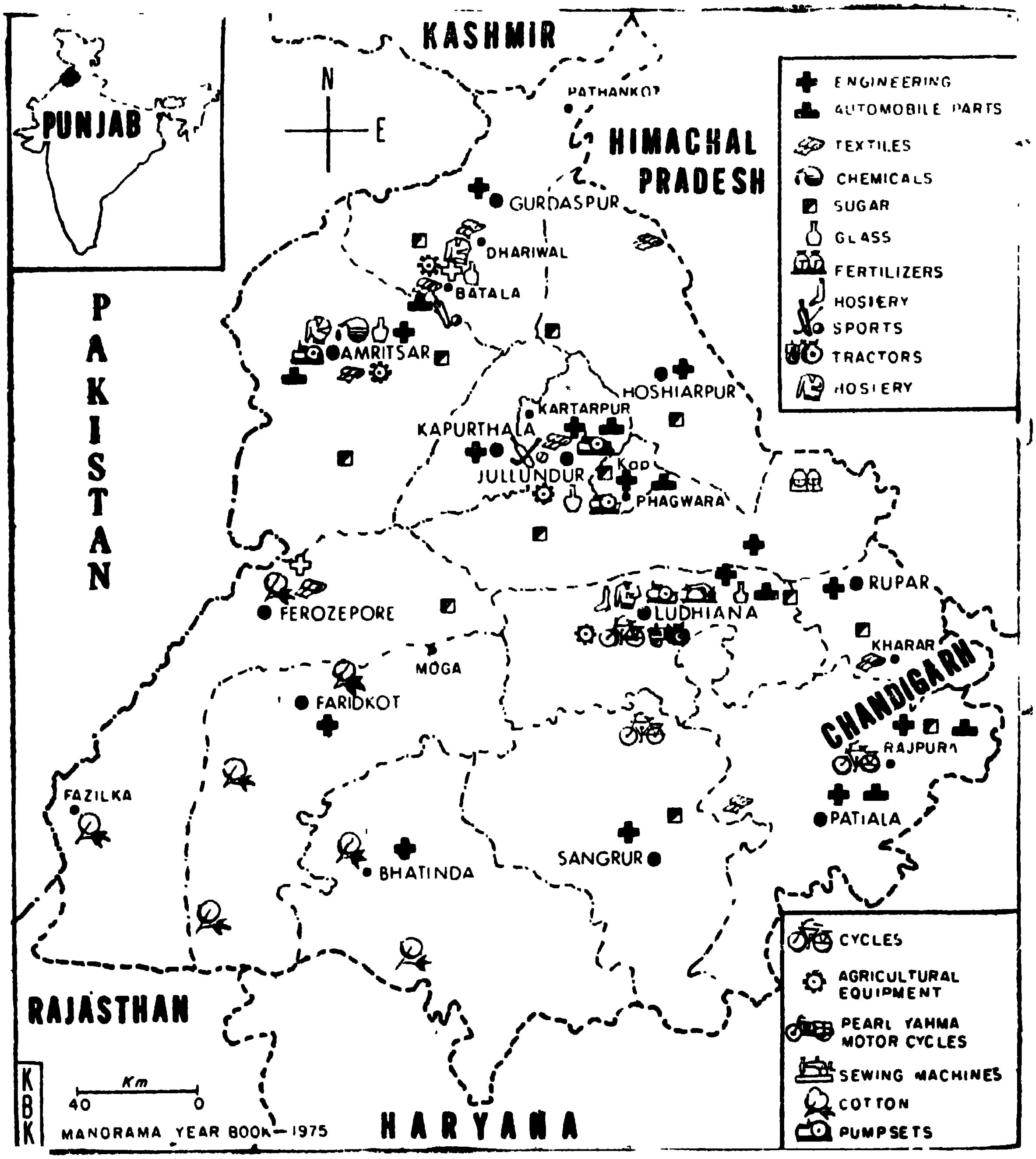
"The survey of the history of the Punjab upto the 10th century AD reveals that this region not only played an important part in the history of India but was also the meeting point of many cultures and peoples in Asia. It became a cockpit and confluence in which there was an unending amalgamation of communities and cultures, resulting in a pragmatic, experimental and utilitarian outlook and robust commonsense. Throughout this period, Punjab acted as the sentinel of India". (*Punjab*, Singh Gupta).

From the tenth century AD, began a series of Muslim invasions culminating with Babar, the founder of the Mughal Empire. With the decline of the Mughal empire, two other Muslim invaders crossed into India, Nadir Shah in 1738 and Ahmed Shah Abdali in 1748, 1750 and 1751. Punjab had the worst of all these invasions.

The Sikh faith, which played a decisive role in the creation of a Punjabi-speaking State, came into being during a period of religious revival in the 15th and 16th centuries. It was founded as a new religious order by Guru Nanak. He was followed by nine Gurus. The subsequent 200 years witnessed the growth of Sikhism and its transformation into a militant organisation.

Guru Angad developed the Gurmukhi script by combining the scripts current in North India. Guru Ram Das laid the foundation of the temple at Amritsar. Guru Anjan Dev compiled the *Adi Granth*. His son Guru Har Gobind started training his followers in the military art.

The intolerance shown by the Mughal emperors who succeded Akbar, was mainly responsible for the change in the Sikh attitude. Jehangir who grew suspicious of the spreading influence of Sikhism put Guru Arjun to death in 1606. His son Guru Har Gobind had to undergo 12 years imprisonment in Gwalior. He had to fight four battles against Mughal troops and he defeated the Imperial army of ShahJehan near Amritsar in 1628. Guru Teg Bahadur. who succeeded Guru Har Kishan, was put to death by Aurangzeb. His martyrdom infused a new spirit among Sikhs and they organised themselves into a full-fledged military force under the leadership of Guru Gobind Singh, son of the assassinated Guru. Guru Gobind Singh's entire life is a record of glorious heroism and supreme sacrifice. It was he who created the Khalsa and made the Sikhs a mighty factor in India's life. He organised the



first serious attempt to overthrow the Mughal Empire in the north. The Sikhs rose to the height of political glory under Maharaja Ranjit Singh. After Maharaja Ranjit Singh's death, the kingdom began to crumble. The collapse came about as a result of two Anglo-Sikh wars in rapid succession.

Punjab was annexed to British India by Lord Dalhousie in March 1849. But the spirit of Punjab remained unvanquished. Through the centuries Punjab became the sword-arm of British India. Punjab was constituted a separate province of India in 1937. With the partition of India, Punjab was divided between India and Pakistan as East Punjab and West Punjab (India). On Nov. 1, 1956 the Princely States adjoining Punjab were formally absorbed into the Punjab State. On Nov. 1. 1966 Punjab was divided into three units, *Punjab* comprising the predominantly Punjabi-speaking areas, *Haryana* made up of the Hindi-speaking districts and Kharar tehsil, and *Chandigarh* the capital. Punjab and Haryana are now separate States while Chandigarh remains a Union Territory.

Administration

Legislature: The legislature is bicameral-the Legislative Assembly consisting of 104 members and the Legislative Council with 40 members The State is divided into 11 districts.

Table 265

	District	*Area (sq. km.)*	*Population (1971 census)*	*Head-quarters*
1	Amritsar	5088	1835500	Amritsar
2	Bhatinda	7022	1318134	Bhatinda
3	Ferozepur	10145	1905833	Ferozepur
4	Gurdaspur	3560	1229249	Gurdaspur
5	Hoshiarpur	3883	1052153	Hoshiarpur
6	Jullundur	3399	1454501	Jullundur
7	Kapurthala	1633	429514	Kapurthala
8	Ludhiana	3857	1419421	Ludhiana
9	Patiala	4583	1215100	Patiala
10	Ropar	2085	545005	Ropar
11	Sangrur	5107	1146650	Sangrur

Economic Structure

Punjab is one of the most advanced States of India, with a per capita income of over Rs. 945/—the highest in India in 1972. Punjab's growth rate between 1960-61 and 1969-70 has been at an annual compound growth rate of 2.57 per cent as against the national average of 1.15 per cent.

Table 266

Some Basic Facts

	Punjab	*All-India*
Percentage to working force (1971)		
(a) Cultivators	42.6	43.3
(b) Agricultural labourers	20.1	26.3
(c) Non-agricultural workers	37.3	30.4
Percentage of villages electrified as on March 31, 1974	58.0	27.3
Per capita value added by manufacture in Rs (1969)	35	48
Bank offices per lakh of population (December-end 1973)	6.3	3.0
Per capita income in Rs. (1970-71)	995	633

Agriculture. Punjab's pre-eminent economic position was achieved mainly by a breakthrough in agriculture, especially wheat. The State is surplus in foodgrains, especially wheat. Over 71 per cent of the total cultivated area is irrigated. The main food crops are wheat, rice, maize, bajra, grams and pulses. The important cash crops are oilseeds, sugar-cane, tobacco, cotton and potatoes.

Table 267

Principal crops-Area and Production (1971-72)

Crops	*Area (Hect.)*	*Prod. ('000 tonnes)*	*Yield per hectare kg.*
Rice	476	955	2006
Bajra	129	108	837
Maize	558	898	1609
Wheat	2401	5361	2233
Total pulses	379.6	294.3	774
Groundnut	157.7	152	964
Rapseed & Mustard	160.3	101.2	631
Cotton	504	1016	363
Sugarcane Gur	105	484	4610

Source: Ministry of Agriculture.

Table 268

Irrigation Projects

Name and Description	*Benefit (area in hectares)*
*Bhakra Nangal** (1) Bhakra dam across the river Sutlej at the foot of Shivalik Hills in Himachal Pradesh. (2) Nangal barrage across the river Sutlej about 13 km downstream of Bhakra Dam.	1,400,000
Beas (Unit I) Beas Sutlej Link. A dam across the river Beas at Pandoh at a distance of 76.8 km from Jogindernagar and 26.8 km upstream of Mandi Town in H. P.	530,000
Beas (Unit II) Pong dam. A dam across the river Beas at Pong 36.62 km from Mukerian station.	650,000
Harike. A barrage at Harike across river Sutlej about 3.25 km below the confluence of Sutlej and Beas rivers.	13,800
Sirhind Feeder. Takes off from Ferozepur Feeder at about 17.7 km downstream of Harike Barrage	No. direct benefits

---

* Power projects: Left bank: 5 units of 90 MW each in Bhakra, two units of 24 MW each and one unit of 29 MW at Gengwal; two units of 24 MW each and one unit of 29 MW at Kotla; Right bank: Five units of 120 MW each in Bhakra.

Animal Husbandry is well developed in Punjab. In 1969 there were 3.12 million cattle, 2.936 million buffaloes, 1.048 million sheep and goats, and other live-stock 260,000.

The total poultry in the State is estimated at about three million.

Forests. The State is poor in forests, a meagre 4.2 per cent of the total area being under forests.

Power. The total installed capacity in 1971 (hydel and thermal) was 680 MW. The number of villages electrified in 1971 was 6,911, and pumpsets energised 98,569.

Table 269

Power Projects

Name and Location	*Installed Capacity*	*Areas Benefited*
Bhatinda (Thermal) Bhatinda	Two units of 110 MW each.	Whole of Punjab
Shanan (Hydro) Joginder Nagar, H. P.	One unit of 100 MW	Punjab and HP
Upper Bari Doab (Hydro) On the channel, taking off from upper Bar Doab Canal, at the site of the regulator of Salampur feeder.	Three units of 15 MW each	Whole State as power generated will be fed into the State grid.

Industry. The State produces 90 per cent of India's woollen hosiery, much of which is exported. Other thriving industries are sericulture, footwear, machine tools, bicycle parts, sewing machines, plastic goods and pipes, nuts and bolts.

Punjab is essentially, the land of small scale industry. There is only one large public sector industry in the State, the Nangal Fertiliser factory with a capital of Rs. 30 crores. All other industries are small or medium sized. Their growth was spectacular. They increased from 7,281 units in 1960, to 27,049 in 1970. In 1972, the number had gone up to around 29,000.

Some of the more important industries are the following.

Table 270

1970-71

Category	*No. of units*	*Employment produced*
Hosiery	2,689	25,454
Agricultural implements	4,868	23,650
Sewing machines & parts	391	6,201
Steel rolling	175	5,095
Sports goods	316	5,668
Woollen textiles	20	15,656
Cotton mills	6	9,282
Sugar mills	6	4,692
Industrial co-operatives (Miscellaneous production)	4,261	150,000

Literacy and Education

Punjab's progress in literacy and education is commendable. With a literacy percentage of 33.67, Punjab is above the national level of 29.5 per cent. The number of educational institutions has increased greatly.

Table 271

Educational Institutions 1970-71

*	*Schools*	*Students*
Primary	7,212	1,431,300
Middle	966	470,271
Higher Secondary	1,191	186,000

Colleges. Number of Arts, Science and Commerce colleges: 160; Technical and Professional colleges: 49; Other colleges: 9; Teachers' Training colleges: 16; Students in colleges: 145,000.

Universities. Guru Nanak University, Amritsar; Punjab University, Chandigarh; Punjab Agricultural University, Ludhiana; Punjabi University, Patiala

Table 272

Newspapers (Dailies)

Name	*Place of Publication*	*Language*	*Circulation*
Tribune	Chandigarh	English	112,029
Ajit	Jullundur	Punjabi	23,266
Hind Samachar	,,	Urdu	47,945
Pratap	,,	,,	12,912
Punjab Kesari	,,	Hindi	45,379
Vir Pratap	,,	,,	26,496

* See Chandigarh also.
Average circulation Jan-June 1974.

Source: *A. B. C.*

Tourism

Punjab is dotted with places of historical and cultural interest. Rupar, one of the centres of Indus Valley civilization, Amritsar, the City of the Golden Temple sacred to the Sikhs, the ancient fort of Bhatinda, the architectural monuments of Kapurthala. the City of Gardens Patiala, and Chandigarh, the capital designed by the French architect Le Corbousier are among the leading tourist attractions of the State.

RAJASTHAN

Area:	342,214 sq km
Population:	25,765,806
Principal Language:	Rajasthani
Capital:	Jaipur
Governor.	Jogendra Singh
Chief Minister:	Harideo Joshi
Leg. Assembly Speaker:	Ram Kishore Vyas
Chief Justice:	B. P. Beri

Rajasthan is one of the border States of India, sharing India's border with Pakistan on the west. It is the second largest State in the Indian Union and is bounded by Pakistan on the west, by Haryana and Punjab and the Union Territory of Delhi on the north, by UP and MP on the east and by Gujarat on the south.

Physiography

Rajasthan is a country of sharp contrasts. The contrasts are noticeable in respect of climate, soil, vegetation and mineral resources. However, the State may be divided into 6 regions: (1) Western arid region (2) Semi arid region (3) Aravalli region (4) Eastern region (5) South eastern region (6) Chambal Ravines.

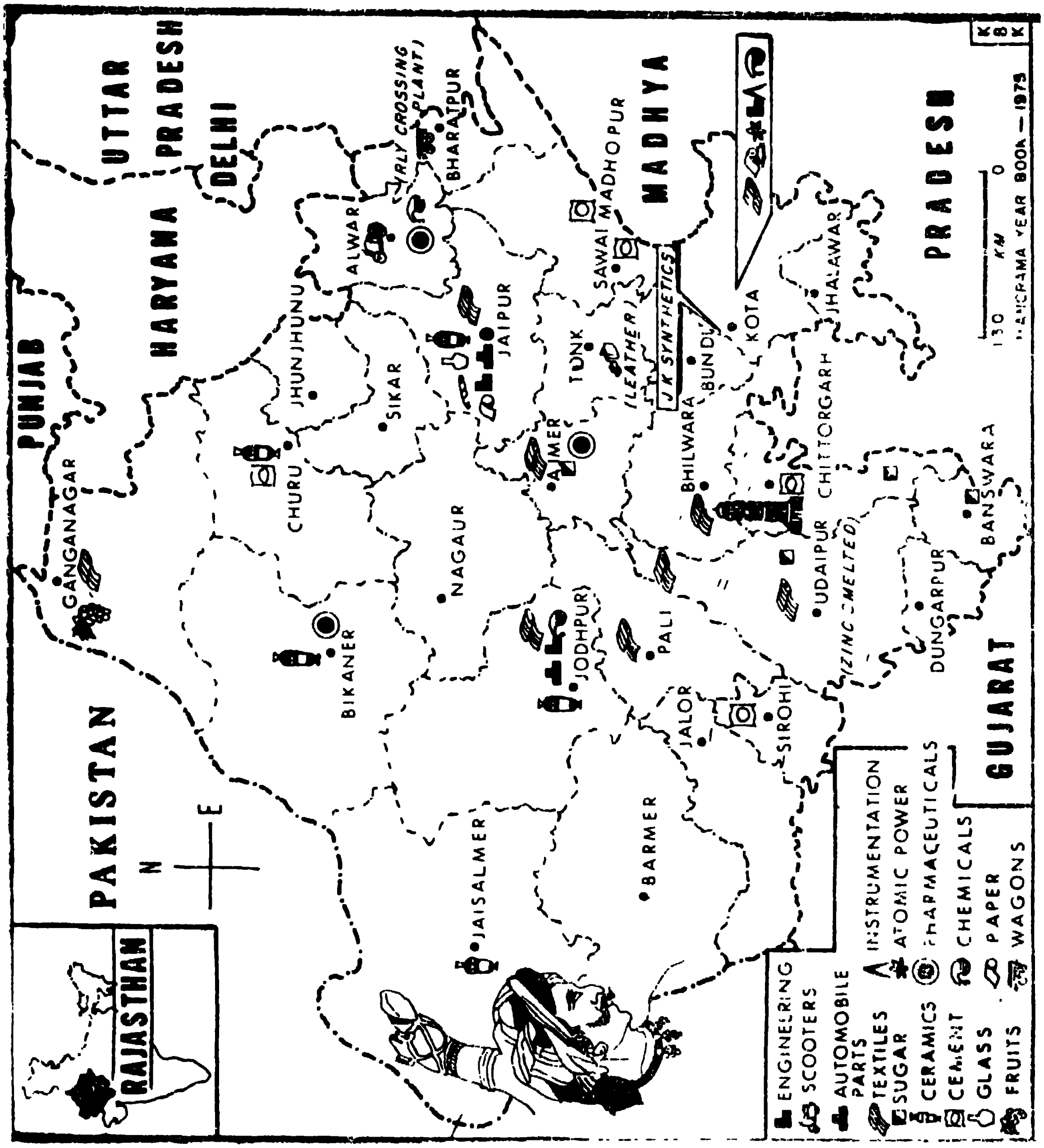
The western arid region covers the whole of Jaisalmer district, north western part of Barmer and Jodhpur, south eastern Bikaner, south western Churu and western part of Nagaur. This region is characterised by typical desert conditions and forms the largest region in the State. The physiography is marked by vast stretches of sand dunes of different types, with rock formations peeping out here and there amid the billowing sands This region receives hardly 10 cm of rain and is consequently the most arid region of Rajasthan.

The semi-arid region lying west of the Aravalli ranges, covers the districts of Jalore, Pali, South eastern Jodhpur and Nagaur, Sikar, Jhunjhunu and north eastern part of Churu. The southern part of this area is watered by the Luni river while the northern part is an area of interior drainage. Rainfall, varies between 25 and 50 cm., but temperatures run high. The rain water in the northern part collects in vast depressions or sinks into the sand. As the water evaporates, it leaves behind deposits of salt and soda. Some of these depressions form salt-lakes, like Sambhar, Degna, Kuchaman and Didwana. Sambhar Lake some 25 km. long and 10 km. wide at its fullest, is the largest of the salt-lakes and yields on an average 250,000 tons of salt per year.

The Rajasthan canal passes through the north west portion of this region irrigating at present Ganganagar district and the north western part of Bikaner district.

The Aravalli region covers almost the whole of Udaipur, south eastern part of Pali and Sirohi and the western part of Dungapur districts. This area is dominated by the mountains of the Aravalli range and outlying hills. Gurushikar (1,727 m.), the highest peak in Rajasthan is located in this region. Rainfall varies from 50 to 100 cm. during monsoons. Mount Abu, in the south western part of this area, is the only health resort in the State. This region is rich in minerals—zinc at Zawar, beryllium at Bari, Sikarbari and other places; mica, soapstone, talc and steatite in Udaipur district; emerald in Deogarh etc.

The Eastern region comprises the districts of Jaipur, Ajmer, Sawai Madhopur, Bilwara, Bundi, Alwar, Bharatpur and north western part of Kota. It is



mainly drained by Banas river and its tributaries. This region has the largest number of industries, located mainly at Jaipur, Ajmer, Kota, Bhilwara and Shahpura.

The south eastern region embraces the districts of Banaswara, Chittorgarh, Jhalawar and Kota. The Kota Jhalawar area consists of stony uplands, but the Chambal river and its tributaries have formed an alluvial basin in Kota.

The Chambal ravine region lies along the river Chambal, where it forms the boundary between Rajasthan and Madhya-Pradesh. Within Rajasthan, the ravine lands run in a narrow belt ranging from 5 to 20 km in the Madhopur and Bharatpur districts. The ravines extend into MP and even into UP upto the point where Chambal joins the river Yamuna. In this area in Rajasthan, a large number of water-sheds occur during the monsoon which run off in heavy torrents, eroding the soil all the way. This area is faced with the problem of Soil erosion, which has become serious enough to menace cultivated lands adjoining it.

History

The State of Rajasthan is an amalgam mainly composed of the old Princely States of Rajputana. It took some eight years for the present State to come into being. The first step towards the formation of this State was taken on March 17, 1948 with the formation of Matsya Union, a union of the four States of Alwar, Bharatpur, Dholpur and Karauli. The second step came with the formation of Rajasthan - union of the nine States of Banswara, Bundi, Dungarpur, Jhalawar, Kishengarh, Kotah, Pratapgarh, Shahpura and Tonk- on March 25, 1948. The State of Udaipur joined the Union on April 18, 1948; thus transforming the Union into the United States of Rajasthan. Next, two most important steps were taken in 1949-the first on March 30, 1949 when the four large States of Bikaner, Jaipur, Jaisalmer and Jodhpur joined the United States of Rajasthan and the second, on April 25, 1949 when Matsya also joined up and there came into existence the United States of Greater Rajasthan. This Union of Greater Rajasthan was further enlarged by the accession to it of the State of Sirohi on January 25, 1960. The final step was taken in November 1, 1956 when the State of Ajmer, the tehsil of Abu and the area of Sunel Tuppa were integrated with Rajasthan. Rajasthan came into being with its status raised from that of a Part B State to a full fledged constituent State of the Indian Union, in 1956.

Administration

Legislature. The legislature is unicameral. The Legislative Assembly consists of 184 members. The State is divided into 26 districts, 83 sub Divisions and 196 tahsils. One interesting feature about the districts in Rajasthan is that they vary in size considerably, so much so that it often happens that a district has the same area as that of a tahsil in another district. Thus, Dungarpur district with an area of 3,770 sq. km, is only one-tenth of Jaisalmer district. But surprisingly enough, Dungarpur had a population of 530,258, while Jaisalmer had only 166,761 in 1971.

Table 273

District	*Area (sq. km)*	*Population (1971 census)*	*Head-quarters*
1 Ajmer	8479	1147729	Ajmer
2 Alwar	8382	1391162	Alwar
3 Banswara	5037	654586	Banswara
4 Barmer	28387	774805	Barmer
5 Bharatpur	8093	1490206	Bharatpur
6 Bhilwara	10450	1054890	Bhilwara
7 Bikaner	27231	573149	Bikaner
8 Bundi	5550	449021	Bundi
9 Chittaurgarh	10858	944981	Chittaurgarh
10 Churu	16829	874439	Churu
11 Dungarpur	3770	530298	Dungarpur
12 Ganganagar	20629	1394011	Ganganagar
13 Jaipur	14000	2482385	Jaipur
14 Jaisalmer	38401	166761	Jaisalmer
15 Jalore	10640	667950	Jalore
16 Jhalawar	6216	622001	Jhalawar
17 Jhunjhunu	5929	929230	Jhunjhunu
18 Jodhpur	22860	1152712	Jodhpur
19 Kota	12437	1143870	Kota
20 Nagaur	17718	1262157	Nagaur
21 Pali	12391	970002	Pali
22 Sawai Madhopur	10593	1193528	Sawai Madhopur
23 Sikar	7732	1042648	Sikar
24 Sirohi	5135	423815	Sirohi
25 Tonk	7200	625830	Tonk
26 Udaipur	17267	1803680	Udaipur

Economic Structure

Rajasthan, though called the 'Desert State of India', is like the rest of India, basically agricultural and rural. The density of agricultural population in Rajasthan is however, lower than the all India average of 101 persons per 100 hectares in the eastern humid region and 22 persons per 100 hectares in the western sandy plain.

Table 274

Some Basic Facts

	Rajasthan	All India
Percentage to working force (1971)		
(a) Cultivators	64.9	43 3
(b) Agricultural labourers	9.3	26.3
(c) Non-agricultural workers	25.8	30.4
Percentage of villages electrified as on March 31, 1974	17.9	27.3
Per capita value added by manufacture in Rs. (1969)	16	48
Bank office per lakh of population (December-end 1973)	2.8	3.0
Per capita income in Rs. (1970-71)	600	633

Land· The land use and crop pattern indicate the limitations imposed by temperature, rainfall and physiographical and soil conditions.

Table 275

Land use in Rajasthan

	Hectares	*Percentage*
Area according to village papers	338,842,000	100
Forests	814,000	2.3
Land put to non-agricultural purposes	1,095,000	3.2
Barren and uncultivated land	5,153,000	15.2
Pastures and Grazing land	1,685,000	5.0
Tree crops and groves	16,000	0.04
Cultivable waste	6,840,000	20.2
Fallow other than current	3,105,000	9,2
Current fallow	2,022,000	6.0
Net area sown	13,112,000	38.8
Area sown more than once	901,000	2.3
Total cropped area	14,013,000	41.1

Source: Directorate of Economics & Statistics, Jaipur

Agriculture. The principal crops are jowar, bajra, maize, wheat, grams, oilseeds, cotton, sugar cane and tobacco. A dificit State in foodgrains in the pre-Independence and the first few post Independence years, the State achieved an all time high in farm yield in 1967 68 (66 lakh tonnes). This abundance was followed by two years of want and unprecedented scarcity which shattered the economy of the State. The year 1970 71 proved to be a year of plenty with a production of 88.33 lakh tonnes—the highest record production for the State.

Table 276

Principal Crops, Area and Production 1972-73

Crops	*Area (Hect.)*	*Prod. (000 tonnes)*	*Yield per Hect. Kg.*
Rice	135.6	79.9	589
Jowar	976.5	303.8	311
Bajra	5233.5	863.5	165
Maize	801.3	660.8	825
Wheat	1395.2	1749 3	1253
Barley	432.9	488.6	1129
Total Pulses	3124.4	999.3	320
Groundnut	258.7	125.5	485
Sesamum	453.7	26.9	59
Rapeseed & Mustard	293.3	215.3	734
Cotton	343.1	287.2	151
Coriander	45 2	24.4	540
Tobacco	5.8	3.5	
Opium	11973	376	

Irrigation. In Rajasthan there are three main sources of irrigation, canals, tanks, wells and tube wells.. Wells and tube wells irrigate nearly 55 per cent of the total irrigated area; tanks irrigate 21 per cent and canals 24 per cent. At present the gross irrigated area in Rajasthan is only 24.19 lakh hectares. But major irrigation works under way include the Rajasthan Canal (which will be the longest in the world, when completed) and the Kotah Barrage and Rana Pratap Sagar.

Table 277

Irrigation Projects

Name and Description	*(Benefit area in hectares)*
Kotah Barrage. A barrage across the river Chambal 0 8 km upstream of Kotah City	222,000
Rajasthan Canal. The canal takes off from Harike Barrage in Punjab across the river Sutlej.	1,163,000
*Rana Pratap Sagar Dam** A cam across the river Chambal 51.5 km upstream of Kotah barrage and 56.33 km downstream of Gandhi Sagar.	121,400

---

* It is an inter-state project with MP.

Animal Husbandry occupies an important place in the economy of Rajasthan. The industry provides subsidiary occupation to the desert inhabitants, especially the nomadic tribes, who depend on livestock for their livelihood.

The livestock of Rajasthan constitutes about 11 per cent of the all India total. About 56 per cent of the camel population and some 9 per cent of the sheep population are found in the State. There are some excellent breeds of native cattle, which are good milkers and fine draught animals.

Forests are sparse and cover about 10 Per cent of the total area.

Teak is found in the forests, but it is of inferior quality. The chief forest produce are Kattha (a dye), charcoal, bamboo, gum, grass and *Khas*.

Minerals. Rajasthan is a store house of minerals, which have yet to be exploited. The country's entire output of lead and zinc concentrates, emeralds and garnets are derived from the State. Besides, 92 per cent of India's gypsum, 90 per cent of silver, 75 per cent of asbestos and felspar and 20 per cent of mica are mined here. It has rich salt deposits at Sambhar and other places.

Power. The total installed capacity in 1972 was 518.20 MW both hydel and thermal. The number of villages electrified in 1971 came to 3,067 and pumpsets energised to 35,095.

Table 278

Power Projects

Name and Location	*Installed capacity*	*Areas Benifited*
Jawahar Sagar Dam (Hydro) A dam across the river Chambal 29 km upstream of Kotah City in Bundi district	Three units of 33,000 kW each.	Kotah, Jaipur, Bundi, Ajmer, Nagore, Jhalawar, Sawai Madhopur, Tonk, Bilwara, Udaipur districts.

Industry. Textiles, rugs and woollen goods, sugar, cement, glass, sodium producing plant, oxygen and acetylene producing units, manufacture of pesticides, insecticides and dyes are some of the major industries. Other enterprises include the manufacture of caustic soda, calcium carbide, nylon tyre cord and copper smelting.

Rajasthan's handicrafts are famous all over the world. Important handicrafts are marble work, woollen carpets, jewellery, embroidery, articles of leather, pottery and brass embossing.

Literacy and Education

Rajasthan's literacy rate is poor, 19.07 per cent as against the national average of 29.45. But the State has improved greatly in the provision of educational facilities.

Table 279

Education

Nature of Institution	*No. of Institutions (1970-71)*
Universities	3
Institution deemed as University (Pilani)	1
Colleges for general education	83
Colleges for Professional Education	96
Colleges for Special Education	44
Higher secondary and multipurpose schools	425
Junior higher secondary schools and high schools	609
Middle/Senior Basic schools	2,042
Primary/Junior Basic schools (including Nursery schools)	19,330
Schools for Professional Edn.	11
Schools for Special Edn (Excluding Adult Edn. centres)	68

Table 280

Newspapers

(Dailes)

Name	*Language*	*Place of Publication*
Navjyoti Herald	(English)	Jaipur
Jalte Deep	,,	Jodhpur
Aag	(Hindi)	Kota
Adhikar	,,	Jaipur
Amar Rajasthan	,,	Jaipur
Chambal	,,	Kota
Kalam	,,	Bikaner
Mashal	,,	Jaipur
Nav Jyoti	,,	Ajmer
Nav Jyoti	,,	Jaipur
Rajasthan Patrika	,,	Jaipur
Rajasthan Times	,,	Alwar
Rashtra Doot	,,	Jaipur
Udai Bhanu	,,	Bharatpur
Vir Sainik	,,	Bharatpur
Jalte Deep	,,	Jodhpur
Bharat Bhoomi	Sindhi	Ajmer
Hindvasi	,,	Ajmer
Hindu	,,	Ajmer

Tourism

Rajasthan is the land of forts and temples. The oldest fort is Chittor built in the 11th centuary A. D. The fort is built at a height of 175 metres from the Padmini's Palace, a sun temple of the 10th century, and the tower of victory. Other well known forts are Ranthambhor, Gagron, Jalore and Jaisalmer.

The majority of temples in Rajasthan follow the architectural styles of Orissa and Khajuraho. There are groups of temples at Pushkar near Ajmer, Chandrabhaga, near Jhalwar, Jalore, Krishna Vilas (Kota district) and Mount Abu. The temples at Pushkar are dedicated to Brahma and Savitri. These are well preserved. At Mount Abu, there are five Dilwara temples—all of them Jain temples.

Places of tourist interest:

Mount Abu is one of the prettiest hill stations of India. It is a sacred city and a place of pilgrimage to the Jains. The major sights are: Dilwara Jain temples (11th—13th century AD) containing some of the finest marble carvings in India, Achalgarh temples (15th 16th century), Nakki Talao an exquisite lake, Arbudu Devi—a shrine cut in rock, and the ruins of an ancient town, Chandravati.

Ajmer is a Hindu and Muslim centre. Sights of interest are: the tomb of Khwaja Sahib (a Muslim saint), Ana Sagar lake and Taragarh, a fortress built by Akbar.

Alwar, the headquarters of a princely family during British days, is midway between Delhi and Jaipur and is well-known for its palaces, lakes, museum and armoury.

Bharatpur is famous for its historic fort.

Bikaner, formerly the seat of an Indian prince, lies deep in the Thar desert in Rajasthan. Among the important sights are Bikaner Fort, Lalgarh Palace, Gajner Palace and Bhandsar Temple.

Jaipur, the capital of Rajasthan is known as the 'Pink City'. It is a well laid out modern city. Places of interest are: Maharaja's Palace, Jai Singh's Observatory, Amber (ancient capital), Hawa Mahal, Palace Armoury, School of Arts, Public Library and Museum.

Jodhpur, once the capital of a Princely State, stands on a low range of sandstone hills and is famous for its fort which is perhaps the finest and the most striking in Rajasthan.

Udaipur is a city of lakes and island palaces. The Maharana's Palace the largest in Rajasthan stands on the crest of a high ridge running parallel to the famous Pichola Lake. Other sights in Udaipur are Jag Nivas Palace, Jag Mandir (two island palaces in Lake Pichola), Fatehsagar, another artificial lake with an island garden, Jagadish Temple and the Victoria Hill Museum.

TAMIL NADU

Area:	130,069 sq. km.
Population:	41,199,168
Principal Language:	Tamil
Capital:	Madras
Governor:	K K. Shah
Chief Minister:	M. Karunanidhi
Leg. Council Chairman:	C. P. Chittrarasu
Leg. Assembly Speaker:	K. Govindan
Chief Justice:	K Veera swamy

Tamil Nadu is situated on the eastern side of the southern tip of the Indian peninsula. It is bounded on the east by the Bay of Bengal, in the west by the Arabian Sea and the States of Kerala and Karnataka, in the north by Karnataka and Andhra Pradesh. It is the eleventh largest state in India and forms 4 percent of the country's total area.

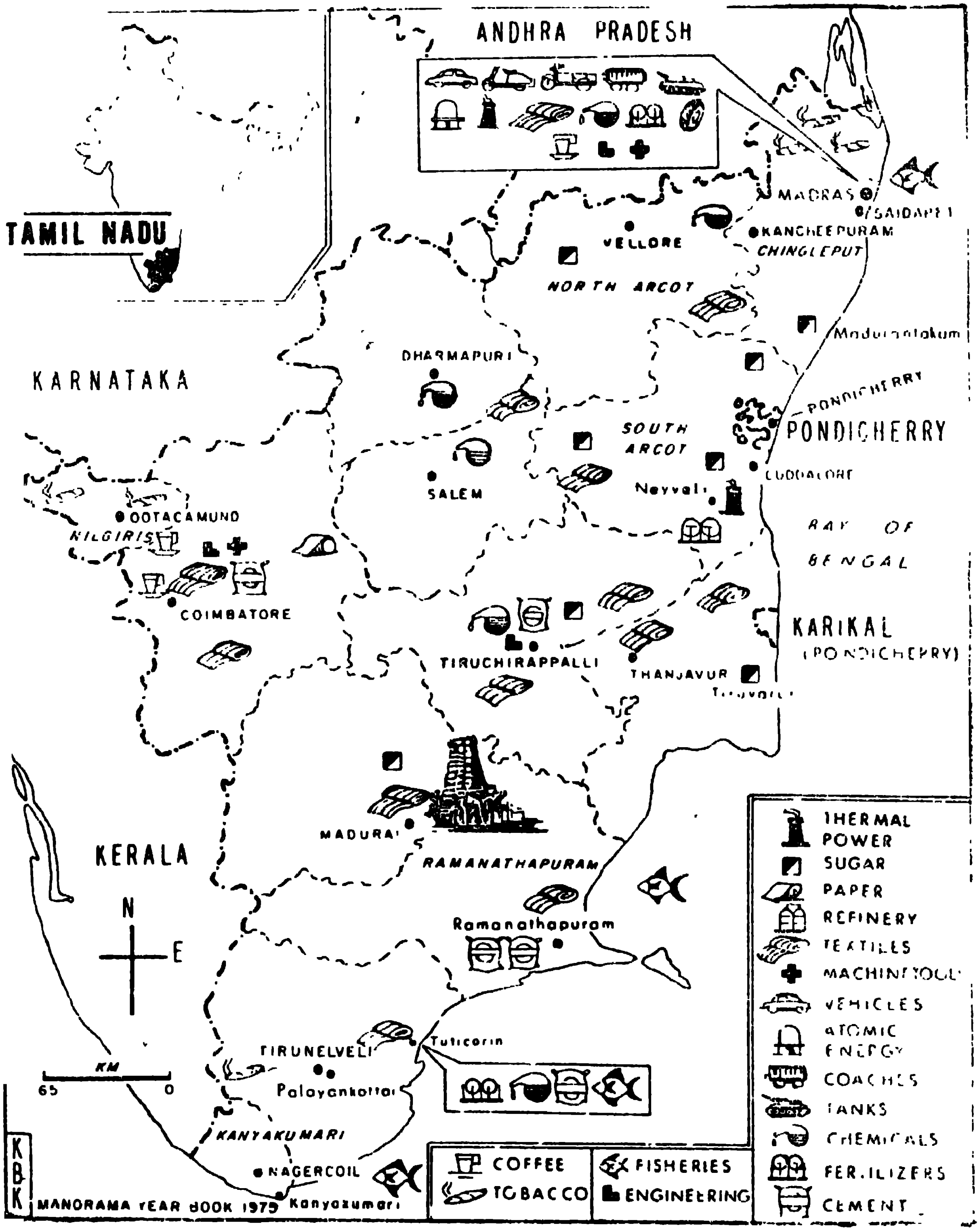
Physiography

The land mass of the State can be divided into two natural divisions: (i) the eastern coastal plain (ii) the hilly region along the north and the west.

Parallel to the coast and gradually rising from it, the broad strip of the T. Nadu plain. This plain is usually sub-divided into (a) the Coromandel plains comprising the districts of Chingleput, South Arcot and North Arcot, (b) the alluvial plains of the Kaveri delta extending over Thanjavur and part of Tiruchirapalli districts (c) the dry southern Plains in Madurai, Ramanathapuram and Tirunelveli districts.

Along the whole length of the western part, at a distance from the sea varying from 80 to 160 km , runs the range of the Western Ghats, a steep and rugged mass averaging 1,220 metres above the sea level and rising to 2,440 metres. The Palghat Gap about 25 km in width is the only marked break in the great mountain wall. To the south of this gap, the range is known as Anaimalais (Elephant Hills). On the east are the Palni Hills on which is situated the famous hill station of Kodaikanal. The slopes of the Western Ghats are covered with heavy evergreen forests. These slopes are the sources of the rivers Kaveri, Vaigai and Tambraparni. The Nilgiris and the Anaimalais are the hill groups with maximum height. In the famous Ootacamund area of the Nilgiri district, the highest peak of Doddabetta is 2,640 metres above the sea level.

The so-called Eastern Ghats begin in Orissa and pass through Ganjam district of Orissa and run south west through all



the districts lying between Ganjam and Nilgiri plateau. Their elevation is 610 metres on the average and their highest peaks are less than 1,830 metres. No river of any importance rises from these ranges in this State.

Rainfall. The rainfall in the region is determined by the south west monsoon (June to Sep.) and the north east monsoon (Oct. to Dec). The north east monsoon is more important to Tamil Nadu, than the south west. The importance of the north east monsoon sharply distinguishes the State from the rest of the country where the south west monsoon plays the major role The districts of Chingleput, South Arcot, Thanjavur, Madurai, Ramanathapuram and Tirunelveli depend mainly on the north east monsoon. The normal rainfall is 1,020 to 1,140 mm in South Arcot and Thanjavur districts and 760 to 890 mm in others. The districts of North Arcot, Salem, Coimbatore and Tiruchirapalli in the central region depend on both the monsoons (north east and south west) and the rainfall is between 760 to 1,020 mm. Nilgiris depend on the south west monsoons with a normal rainfall of 1,520 to 1,780 mm. The average rainfall in the State varies over a wide range of 640 to 1,910 mm. per year.

Rivers The rivers of the State flow eastward from the Western Ghats and are entirely rain-fed. The perennial rivers are: *Palar, Cheyyar, Ponnaiyar, Kaveri, Meyar, Bhavani, Amaravati, Vaigai, Chittar* and *Tambraparni.* The non-perennial rivers are the Vellar, Noyil, Siruliar, Gundar, Vaipar, Valparai and Varshali. The 760 km. long Kaveri is the great river of the State. Rising on the Brahamagiri, a hill in Coorg in the Western Ghats, almost near the Arabian Sea, it travels the entire breadth of the peninsula and forms a large delta at its mouth in the Thanjavur district before flowing into the Bay of Bengal.

History

T. Nadu has a very ancient history that goes back some 6,000 years. The State represents the nucleus of Dravidian culture in India, which antedated the Aryan culture by almost a thousand years. It is generally held that the architects of the Indus Valley Civilization of the 4th millennium BC were Dravidians and that at a time anterior to the Aryans, they were spread over the whole of India. With the comming of the Aryans into North India, the Dravidians appear to have been pushed into the south, where they have remained confined. T. Nadu, with other southern States, Andhra pradesh, Karnataka and Kerala today form the repositories of Dravidian culture.

The Dravida country of which modern T. Nadu formed a part, was reputedly under three dynasties, Chola, Pandya, and Chera from the 4th century BC. The Cholas occupied the present Thanjavur and Tiruchirappalli districts and surrounding territories and excelled in military exploits. In the 2nd century BC a Chola prince, Elara, conquered Ceylon (Sri Lanka). The Pandyas excelled in trade and learning. They controlled the districts of Madurai and Tirunelveli and part of South Kerala. A Pandyan King sent an embassy to Roman Emperor Augustus in the first century BC. The Cheras were confined to the western coast in what is today, Central and North Kerala.

The Pallavas of Kanchi, rose to prominence. in the 4th century AD and dominated the south for another 400 years. In the sixth century they overran the Chola dominions and carried their arms as far as Ceylon (Sri Lanka). The famous Alvars and Nayanars, sage-poets, flourished during the Pallava era. In the 9th century the last of the Pallavas was defeated by the Cholas who again became a great power in the south.

In the 13th century the Pandyas rose to dominance. Their kingdom was a great centre of international trade. The rise of Vijayanagar spelt the decline of the Pandyas. They were ultimately defeated by Vijayanagar and their territories were annexed to the Vijayanagar Empire. With the disintegration of the Vijayanagar Empire, T Nadu was parcelled out among several kings.

The rise of the Muslim power in India has had its impact on T. Nadu, but by and large, T. Nadu remained unaffected by the political convulsions in north and central India. With the establishment of the East India Company at Madras in 1639, a new chapter was opened in the history of T. Nadu Slowly but steadily the whole of T. Nadu and the rest of South India came under British sway.

When India became free the old Madras province, comprising T Nadu and AP and part of Kerala continued as the State of Madras. But the agitation for a separate Andhra State compelled the Government of India to bifurcate the State into two separate States, AP to include Telugu-speaking areas and Madras, Tamil speaking areas. The old capital Madras city was retained by the new Madras State.

Under the State's Reorganisation Act 1956, Madras lost the Malabar district and the Kasargod taluk of S. Kanara District to the newly formed State—Kerala, while Madras gained four taluks of the Trivandrum district and Shencotta taluk of the Quilon district from Kerala. The four taluks thus gained were constituted into a new district of Madras as the Kanyakumari district The new Mysore State (Karnataka) absorbed some parts of the old S. Kanara district (excluding Kasargod taluk) and the Kollegal taluk of the Coimbatore district. In April 1960, 405 sq. miles of the Chittoor district in AP were transferred to Madras in exchange for 326 sq. miles from the Chingleput and Salem districts.

On January 14, 1969 Madras State changed its name to "Tamil Nadu" – a purely Dravidian nomenclature

Administration

Legislature. The Legislative Assembly consists of 235 members. The State is divided into 14 districts.

Table 281

	District	*Area (sq. km.)*	*Population (1971 census)*	*Headquarters*
1	Chingleput	7920	2907599	Kancheepuram
2	Coimbatore	15673	4373178	Coimbatore
3	Dharmapuri	9643	1677775	Dharmapuri
4	Kanyakumari	1684	1222549	Nagercoil
5	Madras	128	2469449	Madras
6	Madurai	12629	3938197	Madurai
7	North Arcot	12265	3755797	Vellore
8	Ramanathapuram	12578	2860207	Madurai
9	Salem	8643	2992616	Salem
10	South Arcot	10898	3617723	Cuddalore
11	Thanjavur	9735	3840732	Thanjavur
12	The Nilgiris	2549	494015	Ootacamund
13	Tiruchirappalli	14291	3848816	Tiruchirappalli
14	Tirunelveli	11433	3200515	Tirunelveli

Economic Structure

Tamil Nadu, is one of the few States in India, that have shown remarkable all round progress since independence.

Table 282

Some Basic Facts

	Tamil Nadu	*All-India*
Percentage to working force (1971)		
(a) Cultivators	31.3	43.3
(b) Agricultural labourers	30.5	26.3
(c) Non-agricultural workers	38.2	30.4
Percentage of villages electrified on March 31, 1974	97 6	27.3
Per capita value added by manufacture in Rs. (1969)	57	48
Bank offices per lakh of population (December end 1973)	4 2	3.0
Per capita income in Rs. (1970 71)	644	633

Agriculture

Cereals production dominates the agricultural sector, with rice remaining the leading crop

Among cash crops, groundnut is the most important. Gingelly and castor are the other oilseeds cultivated. Coriander and chillies constitute the major items under condiments Sugarcane has a fluctuating acreage, the maximum area reported is 172 thousand hectares in 1968-69 Tea and Coffee are the principal plantation crops with 24 thousand and 32 thousand hectares respectively in 1970-71.

Table 283

Crops, Area and Productions (1971-72)

Crops	*Area(Hect)*	*Production('000 tonnes)*	*Yield per hectare Kg.*
Rice	2641	5384	2039
Jowar	658 5	505	767
Bajra	458 2	275.6	601
Ragi	289 5	269.4	931
S Millets	446 4	338.7	759
Total pulses	596.6	173 1	290
Groundnut	1035	1046.7	1011
Sesamum	136.2	43.6	320
Cotton	296.9	351 9	213
Sugarcane (gur)	113.1	986.6	8723
Turmeric	10.6	39.8	3755
Coriander	31.0	12.8	413
Cardamom	5.4	0.6	—
Tobacco	12.5	18.6	1488
Tapioca	44.8	570.7	

Source: Ministry of Agriculture.

Irrigation. Major sources of irrigation are tanks (37 per cent), Government canals (33.3 per cent) and tube wells and ordinary wells (25.5 per cent). The Government canals are the principal sources of irrigation in the deltaic district of Thanjavur and in the non-deltaic districts of Kanyakumari and Tiruchirappalli. The districts where tanks are important are Ramanathapuram (88.3 per cent) and South Arcot (50 per cent).

Wells are the chief sources of irrigation in Salem, Dharmapuri and Coimbatore districts. In Madurai district, all the three major sources are more or less equally important.

Table 284

Area Irrigated by Sources (1970-71)

(In '000 Hectares)

1	Government Canals	861
2	Private Canals	1
3	Tanks	902
4	(i) Tube wells	6
	(ii) Wells	675
	(iii) Supplementing other sources of irrigation	101

Table 285

Irrigation Projects

Name and Description	*Benefit (area in hectares)*
Chittar Pattnamkal. Dams on Chittar river inside the Ambadit Estate and another below Sivalikam factory.	19,021
Lower Bhavani. A dam across the river Bhavani just below its confluence with the Moyar in Gobichettipalayam taluk in Coimbatore district.	78,917
Manimuthar. A dam across the river Manimuthar in Tirunelveli district.	41,694
Parambikulam Aliyar.† It has seven weirs—five on the Annamalai Hills viz. Nirar, Sholayar, Parambikulam, Tunakadavu and Peruvaripallam and two on the plains viz. Aliyar and palar.	67,128

† Inter-State project with Kerala State.

Animal Husbandry. The Livestock population as it stood in 1966 was as follows:

Table 286

Cattle	10,859	(thousands)
Buffaloes	2,724	,,
Sheep, goats and other livestock	24,569	,,
Poultry	11,226	,,

Milk Output. In spite of a large size of livestock population in the State, T Nadu experiences deficiency in its milk requirements, as is the case in most other states. The estimated population of milch cattle for 1971 is 38·71 lakhs consisting of 26.55 lakhs cows and 12.16 lakhs she buffaloes or rather roughly one milch cattle for 10 persons. But the average yield per milch animal is 24 oz or 670 gm which is slightly less than the national average of 29 oz. or 827 gm.

Forests. The total area under forests in T. Nadu is 21,072 sq km. of which 17,264 sq. km are reserved forests and 3,808 sq. km are reserved land. This constitutes 16 per cent of the total geographical area of the State and falls short of the 22 per cent proportion of forest land to total land area of India.

The major forest products in the State are timber, sandalwood and firewood and the minor forest products are bamboos, cane, fibres, grasses, resins etc. The revenue from the major and minor forest products has almost doubled during the sixties from Rs 1.83 crores in 1960-61 to Rs 3.14 crores in 1970-71.

Fisheries. The State has got vast scope for commercial exploitation of marine and inland fisheries. It is estimated that Tamil Nadu accounts for nearly 20 per cent of the fish produced in the country.

Minerals Though a variety of minerals are found, the State is difficient in minerals on the whole. The minerals found are salt, limestone, magnesite, gypsum, crude mica, bauxite, fire clay, lignite, iron ore, etc Salem magnesite reserves are among the best in the country The State produces a large quantity of common salt from sea water.

The value of minerals produced in the State is 1.3 per cent of the value of the minerals produced in India. Salt alone contributes about 50 per cent of the mineral production of the State, limestone 20 per cent, magnesite 11 per cent, ilmenite 9 per cent and gypsum 6 per cent. Small quantities of bauxite and iron ore are available.

At the Neyveli Lignite Project 3.5 million tons of lignite is mined for use as fuel in a fertiliser plant and a power generation unit and for conversion into briquettes for use as domestic fuel.

The quality of iron ore found in the State is very poor, with its low iron and high sillica content. The iron ores are mostly in Salem and to some extent in Tiruchirapalli and North Arcot. These deposits are estimated at over 300 million tons.

The Chalk hills between Salem and Shevaroy contain large quantities of magnesite, and the Salem deposits are the largest in the country. Gypsum reserves are found in Tiruchirappalli, Tirunelveli, Coimbattore and Chingleput districts The mineral is used in cement and fertiliser industries. Limestone deposits are found in Tiruchirappalli, Ramanathpuram and Tirunelveli districts. This mineral is used in the local cement factories. Ilmenite is found in Kanyakumari and Tirunelveli districts. In quality this ilmenite is poor as compared to that in Kerala.

Power. Although generation of electricity took place in T. Nadu as early as 1900, about five years after the first ever Indian electricity project in Darjeeling, systematic and planned development was initiated only in 1927 by Dr. C. P. Ramaswami Aiyar, then Member-in-Charge of Electricity, Government of Madras, when he launched the historic Pykara hydroelectric project. Then came the Kaveri, Mettur and Papanasam hydel projects. On July 1, 1957, the Madras (now T. Nadu) State Electricity Board took over all the assets and administration of the State Department of Electricity

At the end of 1970-71, T. Nadu power grid had 15 hydroelectric stations with a total generating capacity of 1 114 M W and four thermal Stations with a total capacity of 851 M W *

Rural Electrification. As on 31st March 1971, a total number of 11,714 towns and villages and 30,297 hamlets representing 71 and 78 per cents of the total were electrified. The number of pumpsets energised stood at 530 thousands in 1971-72.

(* *Source*: Tamil Nadu, An Economic Appraisal, 1972 - Part I).

Table 287

Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Ennore (Thermal) Ennore, about 12.9 km north of Madras city	Stage I: Two Units of 60 MW each and Two units of 110 MW each. Stage II: one unit of 110 MW.	Madras, Chingleput and North Arcot districts.
Kodayar (Hydro). Across the Kodayar river in Kanyakumari district.	One unit of 60 MW and another of 40 MW.	Southern part of the State.
Kundah H E (Hydro). Dams at Upper Bhavani, Persons Valley, Porthimund, Avalanche Emerald, Kundah Palam Pillur and Pegumbahalah	Stages I and II: 145 MW. Stage III: 245 MW. Stage IV: 110 MW.	Whole State as the power generated will be fed into the State grid.
Mettur Tunnel (Hydro) Built across the river Kaveri, about 51.3 km. from Salem town.	Stage I: Two units of 50 MW each. Stage II: Two units of 50 MW each	Whole State as the power generated will be fed into the State grid.
Neyveli (Thermal) At Neyveli, between Vridhachalam and Cuddalore in the South Arcot district, about 225 km from Madras city.	Stage I: Five units of 50 MW each. Stage II: One unit of 50 MW and one unit of 100 MW Stage III: Two units of 100 MW each.	Whole State as the power generated will be fed into the State grid.
Pandiyar, Punnapuzha (Hydro) in Nilgiris District. The dams are: Pandiyar, Punnapuzha, Yellanalai, Forebay	Single power station of 100 MW. capacicy.	Whole of the State as the power generated will be fed into the State grid.
Periyar (Hydro). About 64 km south east of Madurai town.	Stage I: Three units of 35 MW each and Stage II: One unit of 35 MW.	Whole State as the power generated will be fed into the State grid.

Industry. Just like Bombay and Calcutta, the port of Madras provided the first nucleus of industrial development of the area which now forms T. Nadu. T. Nadu is today the most industrialised of the four southern States. Among all the States of India, T. Nadu ranks third in terms of industrial development, after Maharashtra and West Bengal.

The Integral Coach Factory, one of the biggest industrial concerns in India is in Tamil Nadu. It was set up in collaboration with Messrs. Swiss Car & Elevator Manufacturing Corporation, Schlieren and was commissioned in 1955 A variety of coaches both for the broad guage and meter gauge are produced here. And also different types of coaches are exported to countries like Thailand, Taiwan, Burma etc.

The total investment of the Factory till the end of 1973-74 was Rs. 10.26 crores and it has an annual turnover of the order of Rs. 28.41 crores. It provides employment for 13,405 people.

With regard to the manufacture of coaches at I. C. F. indegenisation has been carried out to the extent of 97.5% for broad gauge, 92.8% for meter gauge, about 90.5% for B. G. E. M U. trailer and 89.3% for B. G. E. M. U. Motor Coach (A. C.)

Table 288

Industrial Production in Selected Industries - 1971

1	Sugar	366	('000 tonne)
2	Hydrogenated oil (Vanaspathy)	21852	(tonne)
3	Refined oil	9660	(„)
4	Salt	1213	('000 tonne)
5	Cotton yarn	160	(„)
6	Staple fibre yarn	25944	(tonne)
7	Tyres (giant and cycle)	9051	('000 Nos.)
8	Superphosphate	43940	(tonne)
9	Caustic Soda	111948	(„)
10	Paints, Varnishes and Lacquers	5052	(„)
11	Refractories	123516	(„)
12	Cement	2799	('000tonne)
13	power driven pumps	1640	('00 Nos.)
14	Power Transformers	1303	('000 kVA)
15	Electric Motors	1030	('00 Nos.)

Source: Tamil Nadu, An Economic Appraisal, 1972 --Part II.

Textiles. The textile industry which is still the most important industry of the State has been passing through a distressing period. Several mills have been closed and the Government has promised assistance in the matter of reopening them. A State Textile Corporation has been set up to go into the aspects of modernisation and management of the textile mills taken over from the private sector.

Handloom Industry is one of the specialized industries of the State. Originally started as a cottage industry it has today assumed large scale proportions.

About two million people in the State are estimated to be dependent on handloom industry for their livelihood. There are about 5.50 lakh looms in the State accounting for nearly 15 per cent of total hondloom production in India.

Literacy and Education

T. Nadu has a high literacy rate 39.39 per cent and ranks second among the States, next only to Kerala In education too, T. Nadu is making excellent progress.

	(In 1971 72)
Primary and Middle Schools	26159
Secondary schools	2699
Arts & Science colleges	169

There are four Universities: Madras Annamalai, Madura and Agricultural University at Coimbatore.

Table 289

Newspapers

(Dailies)

Name	*Language*	*Place of Publication*	*Circulation*
Hindu	English	Madras	2,17,476
Indian Express	„	Madurai Madras Vijayawada Cochin and Bangalore	187,261
Mail	„	Madras	N.A
Daily Thanthi	Tamil	Madurai Tiruchirappalli Madras Tirunelveli Coimbatore and Vellore	N.A.

Dinamalar	,,	Tirunelveli and Tiruchirapalli	N.A.
Dinamani	,,	Madras and Madurai	165,518
Malai Murasu	,, ,, , ,, ,, ,,	Tirunelveli Madurai Coimbatore Vellore Madras and Salem	N.A.
Mursoli	,,	Madras	N.A.
Nava India	,,	Coimbatore	4,846
Nava Mani	,,	Madras	N.A.
Navsakti	,,	,,	,,
Swadesamitran	,,	,,	,,
Malaimani	,,	,,	,,
Nathigam	,,	,,	,,
Andhra Patrika	Telugu	Madras and Vijayawada	41,925
Musalman	Urdu	,,	N.A.

Weeklies with circulation of 50,000 and above.

Ananda Vikatan	Tamil	Madras	207,232
Andra Patrika Illustrated Weekly	Telugu	,,	N.A.
Andhra Prabha Illustrated Weekly	Telugu	Madras	116,627
Dinamani Kadir	Tamil	,,	96,941
Kalki	,,	,,	101,842
Kalkandu	,,	,,	N.A.
Kumudam	,,	,,	N.A.
Varaantari Rani Weekly	,,	,,	305,077
Sunday Standard	English	Madras Madurai Vijayawada Cochin and Bangalore	212,547

Fortnightly and mothly magazines with circulation of 25,000 and above:

Bommarillu	Telugu	Madras	N.A.
Kalaimagal	Tamil	,,	42,938
Pesum Padam	,,	,,	29,858
Picture Post	English	,,	58,539
Rani Muthu	Tamil	,,	103,939
Thuglak	,,	,,	150,671

Circulation Jan--June 1974
Source: *A. B. C.*

Tourism

Cape Comorin (Kanyakumari) the southernmost tip of India, (87 km south of Trivandrum) was formerly part of Kerala, but is now part of the T. Nadu State. The Temple at Cape Comorin dedicated to the Virgin Goddess (Kanyakumari) is a place of pilgrimage to Hindus. The Arabian sea and the Bay of Bengal meet at Cape Comorin. The Vivekananda Mandapam built on the occasion of the Swamiji's birth Centenary (1970) and the famous Gandhi Mandapam, with a central stupa, 79 ft. high are attracting visitors to Kanyakumari. The sunrise and sunset on full Moon days at Kanyakumari are also objects of great attraction.

Conjeevaram (Kanchipuram) is regarded as the Banaras of south and is some 45 miles to the south east of the city of Madras. It is one of the seven holy cities of India. There are over 1,000 temples in this town, the most important among which are: Kailasnath Temple, Vaikunth Perumal Temple (both over 1,000 years old), Ekambareswar Temple, built some 400 years ago, and the Vedaraja Perumal Temple.

Conoor is a hillstation in the Nilgiri Hills in the T. Nadu State. Sim's Park (containing a collection of plants). Low's Waterfall, and the Hill Fort of Tiger Rock are the main tourist attractions in Coonoor.

Kodaikanal, one of the famous hill stations of India is in Palni Hills, Tamil Nadu State. Waterfalls and fine views all round make Kodaikanal an especially delightful place.

Kotagiri is a minor hill station of the Nilgiris.

Madras. the capital of T. Nadu is the third largest city in India. Places of interest are: Fort St George, High Court, Light House, Museum, Connemara Public Library, Zoo, Moore Market, Parthasarathy Temple, St. Thomas Mount, St. George's Cathedral and the Marina. The Marina Beach is one of the most beautiful promenades in the World· The Integral Coach Factory in Perambur, and the Headquarters of the Theosophical Society at Adayar are practically in the city, while the seven pagodas of Mahabalipuram is about 35 miles from Madras.

Madurai, the ancient Capital of the Pandya kings of the south is the second biggest city in the T. Nadu State. The pride of Madurai is the magnificient Meenakshi temple with its nine majestic towers, and the court of a thousand pillars. Another place of interest is the Tirumala Nayak Mahal, an imposing 17th century palace of the Nayak rulers.

Ootacamund or Ooty, a hillstation in the Nilgiris and the summer headquarters of the T. Nadu. Government during the British administration, is usually described as the queen of the hill stations. As hill stations go, it is rather extensive and has a good mileage of motorable roads. Places of special interest in Ooty are Botanical Gardens, Race Course, Assembly Hall, Doda Betta the highest peak in the Nilgiris, and the Pykara Hydro-Electric Dam and the Kundah Hydro-Electric Scheme, both of which are quite near to Ooty.

Rameswaram is one of the islands in Palk Straits. separating India from Sri Lanka. It has a most beautiful quadrangular temple 650 ft. by 1,000 ft. with vast pillared corridors, nearly 4,000 ft. long. Rameswaram is one of the four most important places of pilgrimage in India.

Srirangam an island on the Kaveri contains one of the largest temples in S. India The temple is consecrated to Ranganath (Vishnu) and contains a hall of 1,000 coulmns. The temple is rich in historical inscriptions of successive dynasties—the Cholas, the Pandyas, the Hoysalas, and Vijayanagar.

Tanjore, in the delta of the Kaveri river in T. Nadu State is historically important as the capital of the Chola kings and later of the Nayaks and Marathas. It is dotted with over seventy temples, the most important of which is Brihadeswar temple which was built by the Chola King Raja Rajeswara. The Tanjore Palace which housed the Nayak and Maratha rulers is the most important place in Tanjore.

Tiruchirappally (*Trichinopoly* , the third largest city in T. Nadu is situated on the banks of the Kaveri. Tiruchirappally is an ancient city and is famous for its Rock Temple which stands on a rock rising 260 ft. above the city.

TRIPURA

Area:	10,477 sq. km
Population:	1,556,342
Principal Languages:	Tripuri and Bengali†
Capital:	Agartala
Governor:	L. P. Singh
Chief Minister:	Sukhomoy Sengupta
Leg. Assembly Speaker:	Manindralal Bhowmik
Chief Justice:	(See Assam)

Physiography *

Tripura is the smallest state of the Indian Union in area and the fourth smallest in population-that is, after Nagaland, Meghalaya and Manipur.

It is surrounded on all sides by Bangladesh, except for a narrow neck in the north west, where it borders on Assam Almost 60 per cent of the State is hilly, and the rest forests. The State normally gets about 2100 mm rainfall but it is unevenly distributed The soil is loose and porous and cannot retain moisture. These factors render cultivation a difficult operation.

Formation of the State

Tripura was originally a Princely State and was merged into the Indian Union on Oct. 15, 1949. Its population was mostly tribal, till the partition of India. With partition, refugees from East Bengal swarmed into the State. There was a further influx of refugees, when Bangladesh was struggling for liberation. These refugees soon out-numbered the local population, three to one and the entire economy of the State was thrown out of gear. Tripura was formally declared an Indian Territory on Nov. 1, 1957 and elevated to the status of a State on Jan. 21, 1972.

The population of Tripura rose from 114,200 in 1961 to 1,556,342 in 1971, the growth rate during the decade working out at 36.28 per cent. The males outnumber the females by 1,000 to 943. Nearly 90 per cent of the population live in the villages. The Scheduled Tribes, who formed the original population constituted 28.95 per cent of the population in 1971.

---

† Bengali was declared the official language 2 years after the State was formed-January 21, 1974.

* See also Map of North East Area p. 451.

Table 290

Tripura at a Glance

Population of Tripura
(1971 census) Males = 801,126
Females = 755,216
Total = 1,556,342
Decennial population
Growth rate 1961-71...36.28
Density of population = 149 per sq. km.
Proportion of Urban population = 10.43
Literacy rate Males = 40.1
Females = 21.1
Total = 30.9

Administration

Legislature. The legislature is unicameral–the Legislative Assembly–consisting of 60 members

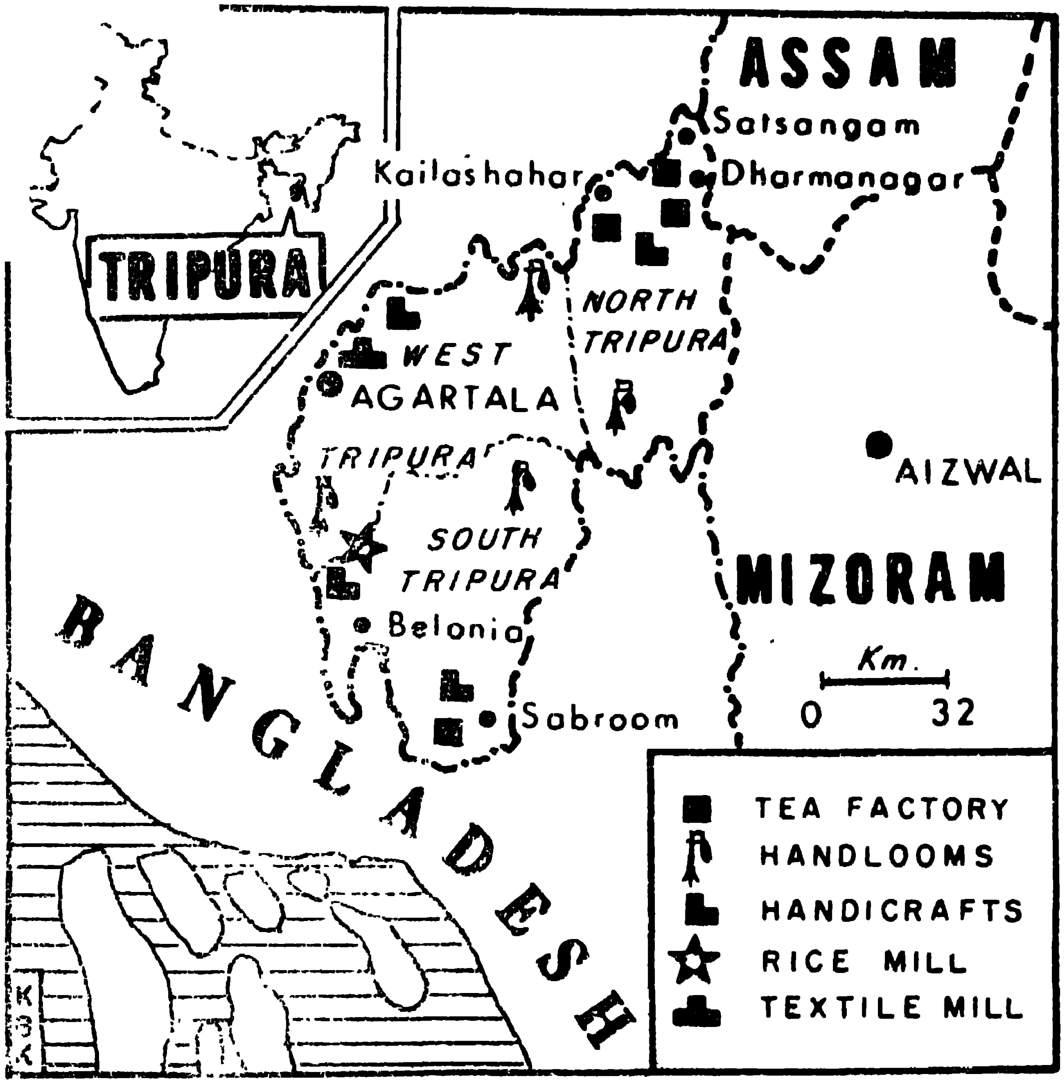
Tripura is divided into three districts, 10 administrative sub-divisions and 177 tahsils.

Table 291

	Districts	*Area (sq. km.)*	*Population*
1	North Tripura	3,541	405,009
2	South Tripura	3,577	399,728
3	West Tripura	3,359	751,605

Economic Structure

Tripura, is by all accounts, a backward state. Before the refugees swamped the State, it was more or less self-sufficient. But with the influx of the refugees, goods became scarce-foodgrains especially.



MANORAMA YEAR BOOK – 1975

Table 292

Some Basic Facts

	Manipur	All India
Percentage to working force (1971)		
(a) Cultivators	54.4	43.3
(b) Agricultural labourers	19.9	26.3
(c) Non-agricultural workers	25.7	30.4
Percentage of villages electrified as on March 31, 1974	2.1	27.3
Per capita value added by manufacture in Rs (1969)	1	48
Bank offices per lakh of population (December-end 1973)	1.1	3.0
Per capita income in Rs. (1967-68)	459	562

Agriculture

Agricultural production consists of rice, cotton, tea. fruits, jute and mesta-jute is the principal cash crop and rice the main food crop. The tribals followed jhaming (shifting cultivation). This ruinous practice is being slowly replaced by modern methods. There has been an increase of acreage under modern cultivation-35 per cent (Amman rice), 236.92 per cent (Aus rice) and 844·17 per cent (Boro rice) and 37.13 per cent in sugar-cane etc.

Forests. Tripura was once rich in forests. But the practice of jhumming and large scale encroachments, have reduced the forest area and degraded the forest wealth·

The depleted forest lands of Tripura, have a high potential for bamboo cultivation. The State is planning to take up bamboo cultivation on a large scale, to provide raw material for a paper and pulp industry. The central government has sanctioned Rs. 55 crore paper mill at Fatikire, North Tripura, which will produce 96,000 tonnes of paper and provide work for 12,000 people.

Industry. Tripura is woefully short of power and has to depend upon Assam for essential supplies. Attempts are being made to start modern industries on a massive scale but it is an uphill task. However the State is well up in cottage industries and handicrafts. The table below shows the numbers and types of industries obtaining at present in Tripura.

Table 293

Industry	Units in brackets	Total No. of workers	Value of production (in Rs)
Handloom	(607)	1943	3105688
Tailoring	(691)	1046	257050
Carpentry	(251)	881	1810979
Pottery	(633)	1501	1194078
Rice, Oil mills	(128)	1931	1082355
Bidi making	(23)	703	1008290
Trunk making	(16)	59	324275
Gur Khandsari	(86)	230	128518
Bakery	(31)	349	276600
Motor repairing	(40)	172	157063
Soap making	(5)	49	639217
Brick making	(19)	2050	3775120
Pharmaceutical Works	(3)	16	117300
R C C Spun pipe	(1)	40	427000
Hosiery	(1)	7	110000
Fruit canning	(1)	25	216000

Source: Econ. Times.

Literacy and Education

Tripura, in spite of its backward economy has a comparatively high rate of literacy-30.98 per cent. Education has also made massive strides since 1947 The number of institutions for children of age group 6 to 11 increased from a mere 123 in 1946 to over 1,400 in 1972· Middle schools functioning in 1971-72 numbered 335 with an enrolment of 38,900 and secondary schools 99 with an enrolment of 21,000.

Table 294

Newspapers

(Dailies)

Name	Language	Place of Publication
Ganaraj	Bengali	Agartala
Jagaran	,,	,,
Dainik Sambad	,,	,,
Bhabi Bharat	,,	,,
Daily Janapad	,,	,,
Dainik Vivek	,,	,,
Daily Rudrabina	,,	,,
Daily Tripura	,,	,,
Prakash	,,	,,
Dainik Nagarik	,,	,,

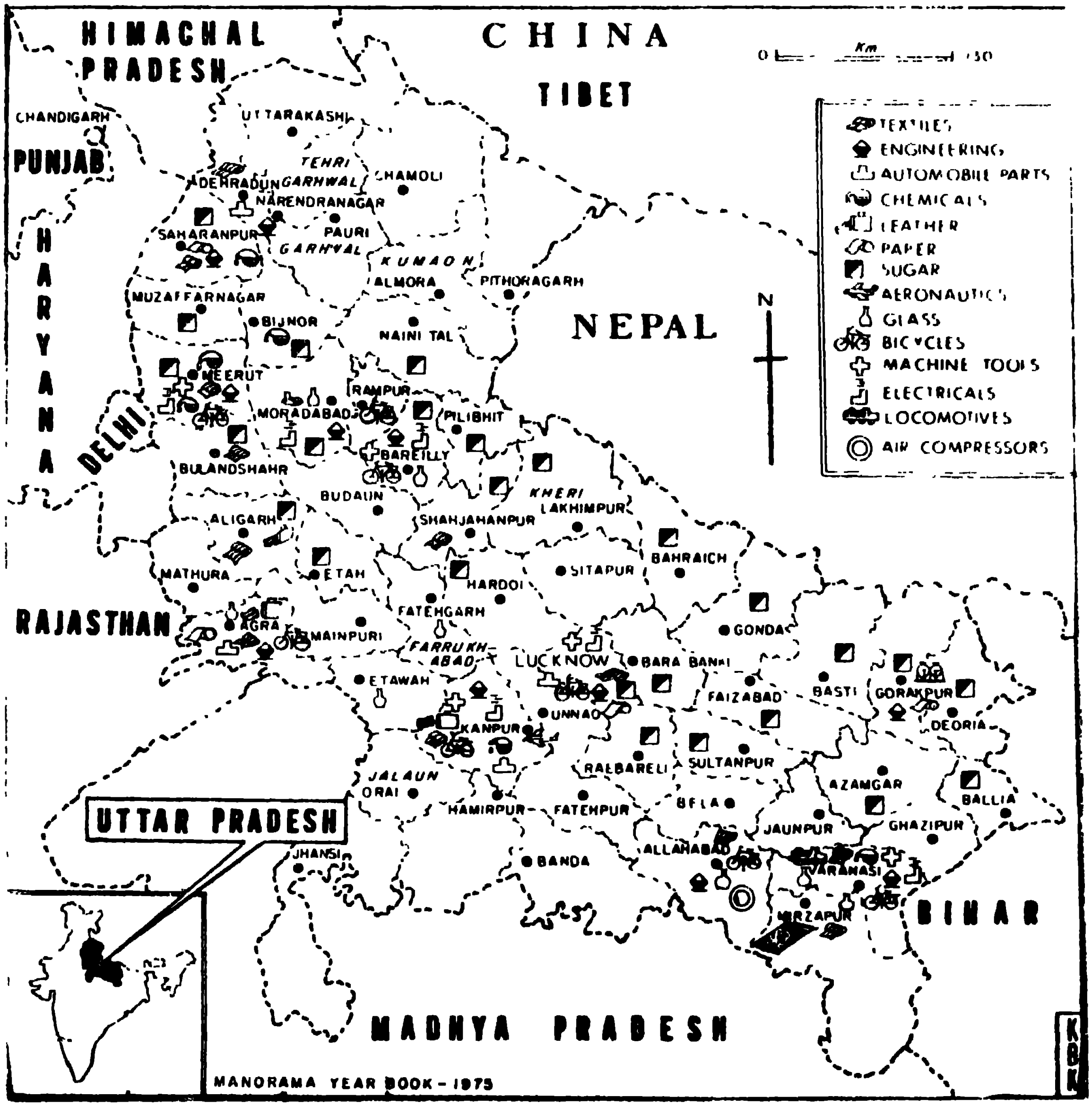
UTTAR PRADESH

Area:	294,413 sq. km
Population:	88,341,144
Principal Language:	Hindi
Capital:	Lucknow
Governor:	M. Chenna Reddy
Chief Minister:	H. N. Bahuguna
Leg. Council Chairman:	Virendra Swaroop
Leg. Assembly Speaker:	Atmaram Govind Kher
Chief Justice:	S. K. Verma

Uttar Pradesh is the most populous state in India. It had a population of 83,341,144 in 1971. On the basis of population, U P is biger than any country in Europe (excluding U S S R) or Africa. In area, it is about the size of Brazil, the largest country of Latin America and ranks fourth in India, after M P., Rajasthan and Maharashtra It has an area of 294,413 sq. kms. which constitutes about 9 per cent of the total area of India

Physiography

Uttar Pradesh is bounded by Tibet, and Nepal in the north, Himachal



Pradesh in the northwest, Haryana in the west, Rajasthan in the southwest, Madhya Pradesh in the south and south west and Bihar in the east.

Uttar Pradesh can be divided into three distinct regions: (i) northern mountains (ii) southern hills and plateau and (iii) the Ganga plain.

(i) The lofty Himalayas embrace Uttar Kashi, Chamoli, Pithoragarh, Tehri-Garhwal, Garhwal and Almora districts, Naini Tal tehsil of Naini Tal district and Chakrata tahsil and a part of Dehra Dun tahsil of Dehra Dun district in the north, covering about one sixth of the total area of the State

The Himalayas rise from a height of 300 metres to a magnificent series of snow-clad peaks more than 6,000 metres above the mean sea level, in the north. The region is deeply cut by the headwaters of the Yamuna, the Ganga, the Ramganga, the Sarda and their tributaries. Apart from the valleys, the region displays a highly dissected and rugged topography which has rendered some areas almost inaccessible.

(ii) This region covers almost the whole of Jhansi, Jalaun, Hamirpur and Banda districts, the Meja and Karchhana tahsils of Allahabad district, nearly the entire Mirzapur district—south of the Ganga river and the Chakia tahsil of Varanasi district The altitude in this area does not generally exceed 300 metres above the mean sea level though in some places, it goes as high as 450 metres. The general slope is towards the north east The Vindhyachal range traverses the Karwi tashil of Banda district.

(iii) Between the Himalayas in the north and the hills and plateau in the south lies a vast homogeneous alluvial plain—one of the largest in the world. Because of the deep alluvium strata the region is almost devoid of minerals, which partly accounts for the very insignificant industrial development of U P. On the other hand, its high fertility had led to heavy pressure of population on land. The northern strip of the plain is called *bhabhar* and *terai* and possesses some distinctive features of its own. The *bhabhar* land is porous and is covered largely with dense forests. Below the *bhabhar* lies the *terai*, a belt formed by the deposition of the finer material of the rivers. The *terai* except where reclaimed, is covered with dense jungle and tall grass, but the forest products have not been fully exploited yet.

The State has a tropical climate except for the Himalayan region which has a temperate climate The average temperature varies from 8°C in January to 42°C in May. The average annual rainfall in the State (excluding the northern mountainous region, for which observational data are not available) is 940 mm. The rainfall decreases from east to west and from north to south. Practically no part of the State receives rainfall less than 500 mm. More than 85 per cent of the rainfall occurs during June to September. There is some rain in winter, which is useful for rabi crops.

Rivers. The main rivers of the State from west to east are the Yamuna, Ganga, Ramganga, Gomati and the Ghaghara. All the rivers, except the Gomati, emerge from the Himalayas. The Yamuna and the Ganga flow from the north east to the south west in their upper mountainous courses, from the north to the south in western parts of the State and thereafter from the north west to the south-east, joining at Allahabad.

The Yamuna is served by a number of tributaries. Its main tributaries are Chambal, Sind, Betwa and Ken which join it from the south after flowing through the southern hills and plateau region. The Ramganga joins the Ganga near Kannauj. The Gomati rises in Pilibhit district and joins the Ganga beyond Varanasi. Sarda and Rapti are the tributaries of the Ghaghara river. The Ghaghara flows from the north west to the south east in the north eastern part of the State and joins the Ganga in the easternmost extremity of the State. Eventually all rivers flow into the Ganga.

Most of the rivers of UP rank among the largest of the country. In sharp contrast to many of the other rivers of the country, most of the rivers of UP are snow-fed and hence the flow of water is perennial and massive even during the lean season. Few other parts of the country enjoy a similar advantage.

History

UP has a very ancient and colourful history. Although the country does not find mention in the Rig Veda, it is recognised in the later vedic age as Bramharshi Desa or Madhya Desa. Many of the great sages of the Vedic times like Bharadwaja, Yajnavalkya, Vasishta, Viswamitra and Valmiki appear to have flourished in UP. Many sacred books of the Aryans were also composed here. Varaha Purana, for example, is associated with Mathura.

The two great epics of India, the Ramayana and the Mahabharatha appear to have been inspired by UP. The Ramayana features the royal family of Kosala and the Mahabharata centres round the royal family at Hastinapura, both in UP.

In the 6th century BC., UP was associated with two new religions, Jainism and Buddhism. Mahavira, the founder of Jainism is said to have breathed his last at Doora in UP. It was at Saranath, again in UP that the great Buddha preached his first sermon and laid foundations of his order. In the post-Buddhist period several centres in UP, like Ayodhya, Prayaga, Varanasi and Mathura became reputed centres of learning. Sri Sankaracharya, the great Hindu reformer established one of his ashrams at Badrinath in UP.

In the mediaeval period UP passed under Muslim rule and led the way in a new synthesis of Hindu and Islamic cultures. Ramananda and his Muslim disciple Kabir. Tulasidas and Birbal, and many other intellectuals, contributed to the growth of the vernacular languages, Hindi and Urdu. Urdu remains the perfect synthesis of Hindu and Muslim cultures

UP kept up its intellectual leadership under the British administration The British combined Agra and Oudh into one province called the United Provinces of Agra and Oudh. The name was shortened to United Provinces in 1935. After Independence, in January 1950 the United Provinces was renamed Uttar Pradesh

Administration

Legislature. The State has a bicameral Legislatuer-the Legislative Assembly consisting of 426 members and the Legislative Council, made up of 108 members.

UP is divided into 54 districts.

Table 295

	District	*Area (sq.km)*	*Population (1971 census)*	*Head-quarters*
1	Agra	4816	2308638	Agra
2	Aligarh	5024	2111829	Aligarh
3	Allahabad	7255	2937278	Allahabad
4	Almora	7023	750038	Almora
5	Azamgarh	5744	2857484	Azamgarh
6	Bahraich	6871	1726972	Bahraich
7	Ballia	3183	1588935	Ballia
8	Banda	7645	1182215	Banda
9	Bara Banki	4422	1635593	Bara Banki
10	Bareilly	4125	1779867	Bareillly
11	Basti	7309	2984090	Basti
12	Bijnor	4652	1490185	Bijnor
13	Budaun	5158	1645967	Budaun
14	Bulandshahr	4895	2073343	Bulandshahr
15	Chamoli	9125	292571	Chamoli
16	Dehra Dun	3088	577306	Dehra Dun
17	Deoria	5400	2812350	Deoria
18	Etah	4449	1517925	Etah
19	Etawah	4327	1447702	Etawah
20	Faizabad	4427	1927281	Faizabad
21	Farrukhabad	4349	1556930	Fatehgarh
22	Fatehpur	4168	1278254	Fatehpur
23	Garhwal	5440	553028	Pauri
24	Ghazipur	3381	1531654	Ghazipur
25	Gonda	7331	2302029	Gonda
26	Gorakhpur	6316	3038177	Gorakhpur
27	Hamirpur	7192	988215	Hamirpur
28	Hardoi	6012	1849519	Hardoi
29	Jalaun	4549	813490	Orai
30	Jaunpur	4040	2005434	Jaunpur
31	Jhansi	10069	1307058	Jhansi
32	Kanpur	6121	2996232	Kanpur
33	Kheri	7691	1486590	Lakhimpur
34	Lucknow	2528	1617846	Lucknow
35	Mainpuri	4254	1445534	Mainpuri
36	Mathura	3797	1290307	Mathura
37	Meerut	5944	3366953	Meerut
38	Mirzapur	11301	1541088	Mirzapur
39	Moradabad	5946	2428971	Moradabad
40	Muzaffarnagar	4245	1802289	Muzaffarnagar
41	Naini Tal	6792	709080	Naini Tal
42	Pilibhit	3504	752114	Pilibhit
43	Pithoragarh	7217	313747	Pithoragarh
44	Pratapgarh	3730	1422207	Bela
45	Rae Bareli	4603	1510812	Rae Bareli
46	Rampur	2372	901209	Rampur
47	Saharanpur	5526	2054834	Saharanpur
48	Shahjahanpur	4581	1286104	Shahjahanpur
49	Sitapur	5738	1884400	Sitapur
50	Sultanpur	4424	1642928	Sultanpur
51	Tehri-Garhwal	4421	397385	Narendra Nagar
52	Unnao	4586	1484393	Unnao
53	Uttarkashi	8016	147805	Uttarkashi
54	Varanasi	5091	2852459	Varanasi

Economic Structure

U P has the largest number of people belonging to the scheduled castes in India and that, both in absolute figures and in percentage In 1971, out of total of 79,995,896 persons belonging to the scheduled castes in India, U P had 18,548,916 people. It is the only state in India, which has an eight-digit population of scheduled castes. The impact of this high number on the economy of the state, according to J. P. Chaturvedi "is reflected in the economic and social complexion of the state and..............in poor returns, poor health, low living conditions and low rate of literacy".

Table 296

Some Basic Facts

	Uttar Pradesh	*All-India*
Percentage to working force (1971)		
(a) Cultivators	57.4	43.3
(b) Agricultural labourers	20.0	26.3
(c) Non-agricultural workers	22.6	30.4
Percentage of villages electrified as on March 31, 1974	26.1	27.3
Per capita value added by manufacture in Rs (1969)	20	48
Bank offices per lakh of population (December end 1973)	1.8	2.0
Per capita income in Rs. (1970 71)	504	633

Agriculture. The State is the largest producer of food-grains and oilseeds in the country. It leads all the States in the production of wheat, maize, barley, gram, sugarcane and potatoes.

Major Grops. Among food crops, wheat, rice, gram, maize and barley are important in the State. Wheat accounts for over 37 per cent of the State's total food-grains production. In fact, the State prouduces about one third of the country's total wheat output About half of the country's barley output is produced by this State. It produces more than one-third of the country's total production of gram and tur. All in all, UP produces about 18 per cent of the country's total foodgrains

Among cash crops, the share of this State in the all India production of rapeseed and mustard is more than three-fourths. The State produces more than two-fifths of the total sugarcane (gur) outturn in the country. Of the total production in the country, this State alone produces a little over one-third of the linseed and one-fourth of the sesamum output.

Table 297

Principal Crops, Area and Production 1971-72

Crops	*Area (Hect.)*	*Production('000 tonnes)*	*Yield per hectare Kg.*
Rice	4413	3248.2	73
Jowar	659.1	446.1	677
Bajra	1052.7	695.3	660
Maize	1470.3	1297.6	883
Ragi	265.3	310.2	1169
S Millets	424.9	247.2	582
Wheat	6362	7633.3	1200
Barley	1259.4	1278.9	1015
Total pulses	3435.6	2793 1	81
groundnut	301.5	269 7	89
Sesamum	668 3	73.7	110
Rapeseed & Mustard	2023.3	1118.6	..
Linseed	617.6	174 2	28
Cotton	50.4	41 0	1
(in '000 bales of 180 kgs each and yield Kgs in hectare)			
Potato	204.3		
Sugarcane(gur)	341.8	5874.3	4370
Coriander	6.0	4.1	
Opium	9163	214	
Sticklac	15.44	...	..

Irrigation. Wells and government canals are the major sources of irrigation in the State. While more than half of the total irrigated area is irrigated by wells, two-fifths of the area is irrigated by government canals. Tanks irrigate a little over 5 per cent of the total irrigated area All these sources together provide irrigation facilities to 36 per cent of the net sown area in the State.

Table 298

Irrigation Projects

Name and Description	*Benefit (area in hetres)*
Matatila. A dam across the river Betwa 56 km south of Jhansi town.	165,757
Ramganga. A dam across the river Ramganga 3.2 km up-stream near Kalagarh in Garhwal district.	659,000
Sarda Sagar. A dam across the river Chuka, a tributary of the Ghaghara river near Indo Nepal border.	74,93
Sarda Canal (Lower). A barrage across the river Ghaghara at Katarnia Ghat 16 km below the Indo Nepal border in Bahraich district	607,000
Western Gandak. A barrage across the river Gandak at Balmikinagar.	164,00

Animal Husbandry

After agriculture, animal husbandry is the most important economic activity n the State. With about 9.6 per cent of the country's total area, UP supports 15 per cent of the total livestock population of the country. In 1961, the State acconted for 15 per cent of the cattle, 21 per cent of buffaloes, 22 per cent of horses and ponies, 13 per cent of goats and 6 per cent of the sheep population of the country.

Forests are one of the richest natural esources of the State. The area under orests in UP is 38.9 lakh hectares or 13 er cent of the total area of the State hich is lower than the 18.5 per cent for e country as a whole and the 33 per nt optimum proportion laid down under e National Forest Policy. Most of the rests are in the Himalayan region and in he *bhabhar* and the *terai* areas of the Ganga plain Districts with a large percentage of area under forests are: Uttarkashi (89 per cent), Garhwal (82 per cent), Almora (68 per cent) and Chamoli (61 per cent). The forests in the State are yet to be exploited intensively to increase their productivity and to meet the chronic shortage of timber, firewood and fodder, and of raw materials for forest-based industries.

Fisheries. A fisheries development programme commenced in the State in 1944 when it had become necessary to supply fish to the armed forces. The annual average output of fish has gone up about three and a half times from 278 tonnes during the First Plan to 951 tonnes in 1967-68. The bulk of the catch is exported to W. Bengal. There is 11.74 lakh hetcares of water area including lakes rivers, canals and streams in the State, out of which nearly 3.24 lakh hectares consist of confined waters.

Minerals. Going by the present knowledge of the mineral resources of UP he State appears to be poorly endowed ith mineral reserves. Whatever reserves e State has, are located in the northn region and the south eastern plateau. out 97 percent of the total value of mineral production in the State was accounted for by minor minerals such as brick earth, ordinary clay, sand, building stones, road metal, kankar etc. The State was the largest producer of minor minerals accounting for 50 per cent of the all India value of this item in 1965. Accounting for 8.9 per cent of the total value of the mineral production in India (excluding petroleum and minerals declared as prescribed substances under the Atomic Energy Act, 1948) UP ranked fourth after Bihar, W. Bengal and MP in 1965. The important minerals found in the State are given below

Table 299

Occurrence of Minerals in UP

Minerals	*Districts*
Limestone	Almora, Dehra Dun Garhwal, Mirzapur and Tehri Garhwal
Dolomite	Dehra Dun, Mirzapur Naini Tal and Tehri-Garhwal
Magnesite	Almora
Coal	Mirzapur
Iron ore	Jhansi, Mirzapur and Naini Tal
Copper and Lead ore	Almora, Chamoli Dehra Dun and Tehri-Garhwal
Gypsum	Dehra Dun, Garhwal and Tehri-Garhwal
Glass sand	Allahabad, Banda, Dehra Dun and Varanasi
Fire clay	Mirzapur
High quality silica sand	Allahabad and Banda

Power. UP increased its installed power capacity from a meagre 178 MW at the beginning of the First Plan to 1,372 MW at the end of 1968-69. But even this considerable step up was inadequate in per capita consumption terms. The per capita consumption of electricty in the State was only 37 kWh in 1967-68 as against 64 kWh for the country as a whole Again, the per capita consumption of electricity by the industrial sector was also much lower (24 kWh.) than the all India average (41 kWh).

Table 300

Power Projects

Name and Location	*Installed Capacity*	*Areas Benefited*
Harduaganj (Thermal). At Harduaganj near Aligarh.	Stage I: Two units of 30 MW each Stage II: One unit of 30 MW. Stage III: Two units of 50 MW each. Stage IV: Two units of 55 MW each and Stage V: One unit of 120 MW.	Whole State through interconnected system·
Kanpur (Thermal). Kanpur.	Two units of 32 MW each and Two units of 110 MW each on extension Stage.	,,
Obar (Hydro). Dam across the river Rihand 53.2 km. downstream of Rihand Dam.	Three units of 33 MW. each.	,,
Obra (Thermal). At Obra in Mirzapur district.	Five units of 50 MW each. Obra extn, Stage I: Three units 100 MW. each and Stage II: Three units of 200 MW each.	,,
Rihand (Hydro) A dam across the river Rihand near Pipri village in Mirzapur District.	Six units of 50,000 kW.	,,
Yamuna (Hydro). A barrage at Dhakpathar 40 km. from Dehra Dun and a diversion dam at Ichari across the river Tons, 12.8 km north west of Kalsi, in Dehra Dun district.	Stage I: Three units of 11.25 MW. each at Dhakrani; Three units of 17 MW. each at Dhalipur Stage II: Four units of 60 MW, each at Chibro and four units of 30 MW each at Khodri,	,,

Industries. Until recently the organised industrial sector of the State was confined to agro based industries such as sugar, cotton textiles, edible oils, miscellaneous food preparations, and paper and paper products However, of late electricity generation, railroad equipment, electrical machinery, basic industrial chemicals, aluminium and cement factories have sprung up in the State.

With per capita income generated in large scale manufacturing in 1966 at Rs.14 compared to the all India average of Rs. 36, the State remains relatively backward in respect of industrial development.

Barely one per cent of the working force was engaged in large scale industries of UP in 1967-68; but they contributed nearly 3 per cent of the total State income.

Sugar, cotton textiles and miscellaneous food preparations (mainly comprising edible oils including hydrogenated oils) are the three important industries in the large scale sector of the State.

The State accounts for nearly two fifths of the sugar production in India Similarly, the State accounts for 22 per cent of the total output of edible oils in this country. Nearly 7 per cent of the cotton and cloth produced by mills, in India is accounted for by the State. Nearly 45 per cent of the rectified spirit, distilled in India is produced in this State alone.

Among cottage industries, the handloom industry is the largest cottage industry of the State. It provides employment to more than 10 lakh persons and accounts for one-third of the requirement of the cloth in the State.

Literacy and Education

In literacy UP ranks 24th among the States and Territories of India with 21.70 per cent as against 29.45 for India as a whole Among the States, only Bihar, Rajasthan and Jammu & Kashmir are lower than UP.

Educational Institutions (1972–73)

Schools No. of Primary Schools:62,408; otal No. of students: 11,616,000; No of oys 7,205,000; No of girls: 4,411,000;No. Teachers: 236,643 *Secondary*: No of econdary Schools: 3,793; Total No. of stunts 1,193,000; No. of boys: 953,000: o. of girls 240,000.
otal No. of teachers: 50,730.

Colleges: No. of Degree Colleges:292: No of students: 118,000; No. of Teachers 7,051; Engineering and Degree Colleges: 6: polytechnics: 28, Diploma Institutions 6.
Total general education budget:
Rs. 1,115,10.

Universities with the year of establishment in brackets and the number of students during 1970-71:- 1 Agra Uuniversity Agra (1927): 74,156; 2. Aligarh Muslim University, Aligarh (1921): 8,000; 3 Allahabad University, Allahabad: (1887): 8,912; 4 Banaras Hindu University, Varanasi (1916): 12,999; 5. Gorakhpur University, Gorakhpur (1957): 42,524; 6. Kanpur University, Kanpur (1966): 50,000; 7 Lucknow University, Lucknow: (1921): 26,186; 8 Meerut University, Meerut (1966 : 53,000; 9. Roorkee University, Roorkee (1949): 1,369; 10 U. P Agricultural University, Pant Nagar, Naini Tal (1960): 1,359. 11 Varanaesya Sanskrit University, Varanasi (1958). n. a

Table 301

Newspapers

(Dailies)

Name	*Place of Publication*	*Language*	*Circulation*
National Herald	Lucknow & N Delhi	English	48,898
Northern India Patrika	Allahabad	,,	36,792
Pioneer	Lucknow	,,	17,360
Daily Action	Kanpur	,,	12,301
Aj	Varanasi	Hindi	N. A
Amar Ujala	Agra	,,	36,667
,,	Bareilly	,,	15,596
Bharat	Allahabad	,,	12,516
Daily Jagran	Jhansi	,,	14,475
,,	Kanpur	,,	51,596
Gandiwa	Varanasi	,,	N A
Nav Jeevan	Lucknow	,,	12.589
Swatantra Bharat	,,	,,	29,664
Qaumi Awaz	,,	Urdu	9,603
Daily Siyasat Jadid	Kanpur	,,	11,320

Average circulation Jan.--June, 1974.
Source: *A B C.*

Monthly magazines with circulation of 25,000 and above:

Name	*Place of Publication*	*Language*	*Circulation*
Manohar Kahaniam	Allahabad	Hindi	91,621
Maya	,,	,,	46,615
Manorama	,,	,,	43,034

* Average circulation Jan.--June. 1974.
Source: *A B C.*

Tourism

Uttar Pradesh stretching from the height of the Himalayas to the level lands of the Gangetic plain offers a variety of attractions to the tourist. The Taj Mahal is in Uttar Pradesh.

Allahabad, also known as Prayag is at the confluence of the Ganga and the Jamuna in U P. It is a sacred bathing place for Hindus, and the Kumbha Mela a religious fair held every 12 years, attracts pilgrims from all over India. Allahabad is a modern town, with a big university and is the home town of Nehrus.

Almora, the headquarters of the district of the same name in UP is the main town in the Kumaon Hills It is an ancient town and one of the finest hill stations in India Naini Tal, however is the Most beautiful hill station in the Kumaon Hills.

Agra, the city of the Taj, lies on the banks of the Jamuna. Apart from Taj Mahal, the important sights are: the fort begun by Akbar but completed by Shahjehan, the Moti Mazjid or the Pearl Mosque, the Tomb of Itimad-ud-Daula, father of the empress Nur Jehan, Akbar's tomb at Sikandra about 5 miles from Agra, and the ruins of Fatehpur Sikri (the City of Victory) about 23 miles from Agra, built by Akbar, but abandoned after 14 years for shortage of water.

Brindavan, Six miles from Mathura is Brindavan which is specially holy to Hindus because of its association with Lord Krishna. Govind Dev Temple, Gopinath Temple, and Ranganath Mandir are the most important places in Brindavan.

Fatehpur Sikri. This city was founded b4 Akbar- Chief items of interest are: Buland Darwaja, Jami Mazjid, Panch Mahal, House of Birbal and Khas Mahal.

Hardwar is on the banks of the Ganga and is sacred place for the Hindus. Every twelfth year a religious fair called Kumbha Mela is held here in which Hindus from all over India participate

Lucknow, the capital of UP is a city of gardens. It is a city of varied historical associations. Places of interest are: Great Imambara and Small Imambara, tombs of Wajid Ali Shah and his Begum, Kaisar Bagh Palace, Chattar Manzil, Dilkhusha Palace, Moti Mahal, Machi Bhavan Palace, Jumma Mazjid, Havelock's Tomb, Museum and Observatory

Mathura was a seat of ancient culture There is an archaeological museum, which houses unique relics of Kushan art

Mussoorie is a hill station in the Himalayas in UP. It is some 18 miles from Dehra Dun.

Varanasi (Banaras) or Kasi, is the most sacred Hindu city in India It is bounded by two tributaries of the Ganga - Varuna on the north and Asi on the south This city was founded around 1200 B C Places of interest are: Vishwanath Temple, Bharat Matha Temple, Manmandir (converted as an observatory in the 17th century), Aurangazeb's Mosque, Ramnagar Fort, Sarnath Temple where Buddha it supposed to have preached his first sermon, and Banaras Hindu University

WEST BENGAL

Area: 87,853 sq. km
Population: 44,312,011
Principal Language: Bengali
Capital: Calcutta
Governor: A. L. Dias
Chief Minister: Sidhartha Sankar Ray
Leg. Assembly Speaker: Apurba Lal Mazumdar
Chief Justice: S P. Mitra

West Bengal covers the bottle neck of India in the east and stretches from the Himalayas in the north to the Bay of Bengal in the south To the east lie Bangladesh and Assam, and to the west Bihar and Orissa Nepal, Bhutan and Sikkim are its neighbours in the north.

Physiography

W. Bengal has two natural divisions, the Himalayan north comprising the districts of Darjeeling, Jalpaiguri and Cooch Behar and the alluvial plain that lies south of it. Darjeeling, the northern most district has a maximum elevation of 3,658 m. above the sea level. The Jalpaiguri and Cooch Behar Districts are low-lying areas watered by swift flowing rivers like the Tista, the Torsa, the Jaldhaka and the Ranjit. The southern part is a thickly populated level expanse of rice fields, dotted with mango, coconut and banana gardens. This vast alluvial plain is the handiwork of many big rivers, the chief of which are the Bhagirathi and its tributaries the Mayurakshi, the Damodar, the Kangsabati, and the Rupnarayan. The Bhagirathi called Hooghly in its lower reaches is itself a branch of the Ganga and provides Calcutta its link with the sea.

The entire State belongs to the high rainfall region The rainfall varies from 120 cm in the south western region to 400 cm. in the northern region. The normal rainfall for the State as a whole is around 175 cm

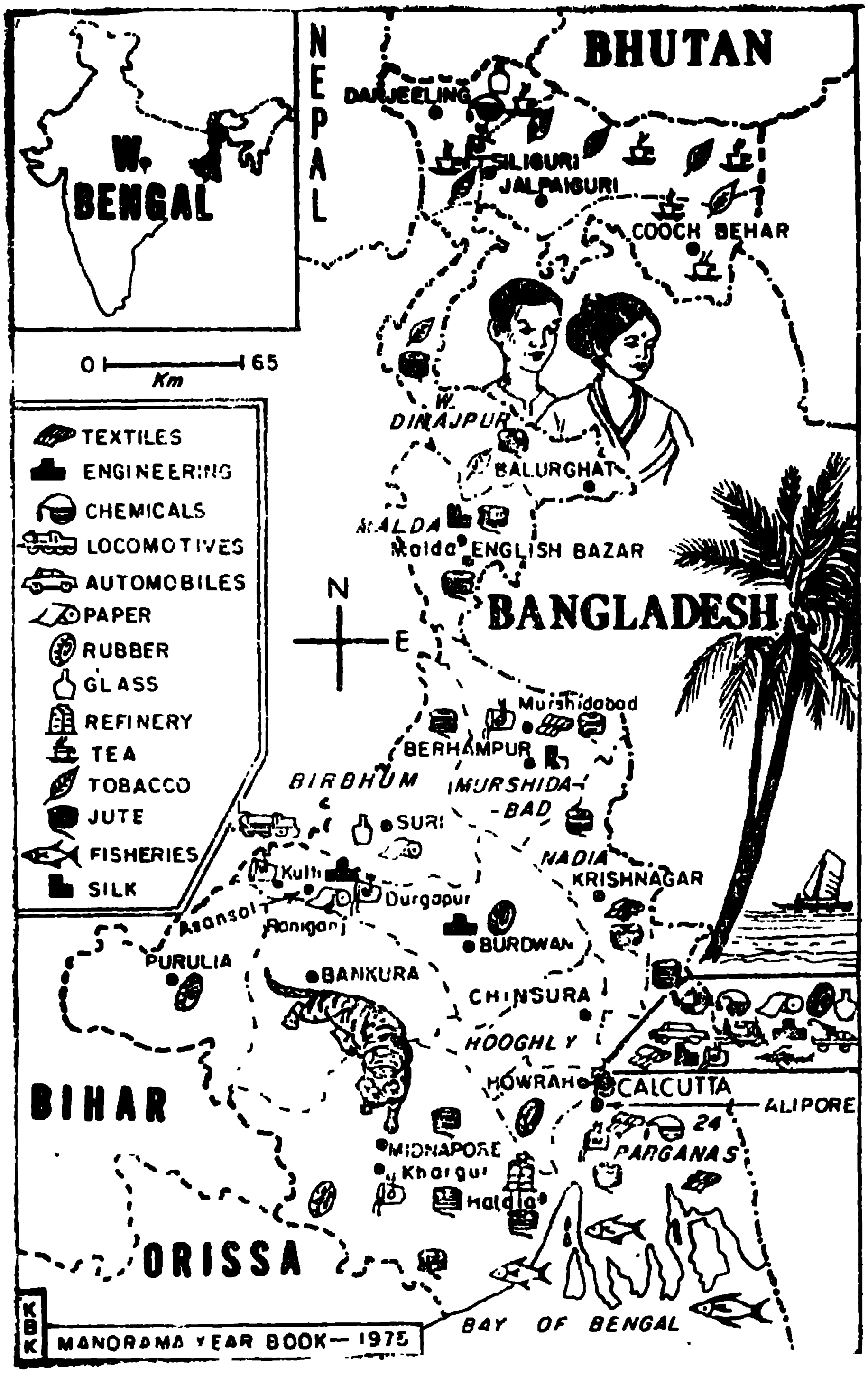
History

The old Bengal of which W. Bengal forms a part, known as Gauda or Vanga in ancient Sanskrit literature appears to have been celebrated from the epic period. The Mahabharata refers to the king of Vanga as an ally of the Kauravas in their war against the Pandavas. Apparently at the time of Aryan penetration into the east, Vanga had a well-settled civilization and culture.

In the 3rd century B C Bengal was part of the Mauryan Empire and from 4th to the 6th centuries AD, it was under the Gupta dynasty. By about A D 800, Bengal had its own dynasty of independent kings–the Palas. The Palas were very powerful and expanded their territories into the neighbouring countries of Bihar, Orissa and Assam. At the height of their power they had diplomatic relations with the Indonesian king Sri Vijaya In the 11 th century, Bengal passed under the rule of a new dynasty – the Senas. The Senas who ruled, from their capital at

Nadia were driven out by Qutbud Din, the Sultan of Delhi. Thereafter Bengal continued to be a part of the Delhi Empire. With the death of Aurangzeb the last of the great Mughals, Bengal became independent under its Muslim governors. Surajud Daula, the last independent ruler of Bengal was defeated by the English at the battle of Plassey in 1757. Thereafter Bengal remained under the administration of the British

When Bengal was first constituted by the British as a province it was a vast area, including present day Bihar and Orissa and extended westwards upto Agra, In 1863 Agra was detached from Bengal



but Assam was added to it. In 1874 Assam was formed into a separate province.

In 1905 Lord Curzon divided Bengal into two provinces. A new province called Assam and East Bengal with its capital at Dacca was carved out of old Bengal. The rest of the territory together with Bihar and part of Orissa formed Bengal. This event, Known as the partition of Bengal, aroused the dormant patriotism of the Bengalis. who opposed the partition as an attempt at disintegrating Bengal. The rest of India stood by Bengal and troubles broke out.

Peace was restored in 1911, when the partition was abrogated by a declaration of King George V at the Royal Durbar in Delhi. Another change announced at the Durbar was the shifting of the capital from Calcutta to Delhi. The new Bengal did not include Assam or Bihar. It was a compact area of over 200,500 sq km.

When India became independent in 1947, Bengal was partitioned between India and Pakistan While Pakistan's share came to be called East Pakistan, India's share was called West Bengal. In 1950 the Princely State of Cooch Behar was merged into W. Bengal. The former French enclave of Chandranagore was added on October 2, 1954. Under the State's Reorganisation Act, some parts of Bihar were transferred to Bengal.

Administration

Legislature. The legislature is unicameral the Legislative Assembly consisting of 280 members. The State is divided into 16 districts,

Table 302

Districts	*Area (sq km)*	*Population (1971 census)*	*Headquarters*
1 Bankura	6881	2031039	Bankura
2 Birbhum	4550	1775909	Suri
3 Burdwan	7028	3916174	Burdwan
4 Calcutta	104	3148746	Calcutta
5 Cooch Behar	3386	1414183	Cooch Behar
6 Darjeeling	3075	781977	Darjeeling
7 Hooghly	3145	2872116	Chinsurah
8 Howrah	1474	2417286	Howrah
9 Jalpaiguri	6245	1750159	Jalpaiguri
10 Malda	3713	1612657	English Bazar
11 Midnapur	13724	5549247	Midnapur
12 Murshidabad	5341	2940204	Baharampur
13 Nadia	3926	2230270	Krishnanaga
14 Purulia	6259	1602875	Purulia
15 24-Parganas	13796	8449482	Alipur
16 West Dinajpur	5206	1859887	Balurghat

Economic Structure

In spite of the great progress in industrialisation that W. Bengal has made i recent years, agriculture still remains th backbone of the State's economy.

About 58 per cent of the workin population depends on agriculture.

Table 303

Some Basic Facts

	West Bengal	*All Indi*
Percentage to working force (1971)		
(a) Cultivators	32.0	43
(b) Agricultural labourers	26.5	26
(c) Non-agricultural workers	41.5	30
Percentage of villages electrified as on March 31, 1974	22.6	27.
Per capita value added by manufacture in Rs (1969)	87	4
Bank offices per 1 lakh of population (December-end 1973)	2.2	3
Per capita income in Rs. (1970-71)	539	63

Agriculture. By far the most importa crop of W.Bengal is rice. It occupies near 70 per cent of the total cultivated area the State. The State accounts for abou 7 per cent of the country's total foo grains production 1970-71) and rank fourth among the States in this respec

In recent times there has been change in the crop pattern of the Stat Wheat is emerging as an important cr next to rice. Barley and maize rema insignificant crops. Pulses including gran and peas, are minor crops. But for the growth in foodgrain production, W Bengal continues to be a food defic State.

Among cash crops, jute, mesta a tea take the pride of place. W. Beng produces nearly 50 per cent of India's jute, 25 per cent of mesta and an equal percentage of tea. Cotton is coming up as an important cash crop.

Oilseeds occupy only two per cent of the cultivated area of the State. They meet only a fraction of the needs of the State. W. Bengal is a big consumer of mustard oil which is a 'must' in Bengali cooking, fish being fried in it It is also used for rubbing on the skin. But much of this commodity has to be imported from nearby States.

Table 304

Principal Crops, Area and Production (1971-'72)

Crops	*Area (Hect.)*	*Prod.('000 tonnes)*	*Yield per hect. kg.*
Rice	5070.9	5742.2	1133
Wheat	369.9	652.7	1765
Total pulses	545.6	284.3	522
Rapeseed & Mustard	95.5	42.6	446
Jute	367.3	2712.3	1329
Mesta	47.9	234.2	880
Potato	75.7	948.8	763
Tobacco	13.1	10	
Sticklac		2148 tons	

Irrigation. Being an area of high rainfall, irrigation is not a matter of high importance. Yet, about 27 per cent of the net sown area in the State receives irrigation as against 20 per cent for the country as a whole Government canals and tanks are the main sources of irrigation. The major irrigation projects in the State are the Mayurakshi and the Kangsabati reservoir projects.

Table 305

Irrigation Projects

Name and Description	*Benefit (area in hectares)*
Kangsabati. A dam across the river Kangsabati and Kumari about. 3.2 km upstream of the confluence of the two rivers near Ambikanagar in Bankura district.	384,465
Mayurakshi. A dam across Mor river at Massanjore, 40 km north west of Suri and a barrage at Tilpara across river Mayurakshi 3.2 km from Suri.	246,861

Animal Husbandry. The livestock population of the State is very large, accounting for about 5.6 per cent of the total livestock in the country.

Forests. The total forested area of W. Bengal is somewhat above 12,000 sq. km. It comes to a little less than 14 per cent of the total area of the State, and is unevenly distributed.

Fisheries. Fish is a very important item in the food of a Bengali. The State is a leading producer of fresh water fish in India. There is a considerable amount of fish catch from the estuarian waters and the Sundarbans. Coastal fisheries give a further supply. Deep sea fishing is also being developed. Yet the consumption in the State is much higher than the supply.

Practically every rural household in the State has a pond for fish culture Fry are sold in the markets and people purchase them to raise them in their ponds. Large ponds and tanks are auctioned to professional fishermen. Fish farms are also developed on a commercial basis. The best known of these are the Bheris of Salt Lakes, east of the city of Calcutta. The farms give a very good yield.

Minerals W Bengal is the second largest mineral producing State after Bihar and accounts for about one-fifth of the total value of mineral output in India Coal is the principal mineral, contributing 99 per cent of the State's total mineral output and about 30 per cent of the total coal production in India. Fireclay is another important mineral in the production of which Bengal ranks third, after Bihar and Madhya Pradesh China clay and dolomites are found in abundance. Quartz is found in Raghunathpur and wolfram at Jhilmili and poraphar. Manganese ores occur in Midnapore and arsenic in small quantities in Darjeeling.

Power. Coal has been the chief power producer of the State. In fact while there is much thermal power production, there is very little hydel power development. The number of villages electrified rose to 3328 in 1972, as against 386 in 1951

Table 306

Power Projects

Name and Location	*Installed capacity*	*Areas Benefited*
Bandel (Thermal) Bandel 64 km north of Calcutta.	Four units of 82.5 MW each.	Lower Bengal region
Durgapur. Coke Oven Station (Thermal) Durgapur.	Stage I: Two units of 30,000 kW each and extn. 75,000 kW unit Stage II: Two units of 75,000 kW each and on extn. one unit of 15,000 kW.	Durgapur and lower Bengal area.
Jaldhaka (Hydro). A barrage across the river Jaldhaka 244 m. below the confluence of Bindu Khola in Darjeeling district and a power house near Jhalong 22.4 m from Chapramari on Assam Railway link.	Two units of 9,000 kW each under Stage I and one unit of 9,000 kW (Extn.)	Jalpaiguri and Cooch Behar.
Santaldih (Thermal). At Santaldih upstream of Panchet reservoir and on the bank of the river Damodar in Purulia district.	Four units of 120 MW each.	Lower Bengal

Industry. W. Bengal has been in the forefront of industrial developement from the very beginning. Two leading industries of the State, jute and tea had a very early lead and today are two foreign exchange earners of India W. Bengal was also the first state to start paper and steel industries. The discovery of coal in Raniganj was the starting point of the industrial revolution in India

In the present industrial structure of the State, the engineering industry is shared between public and private sector companies. Chemicals and rubber form other important branches of industry.

Table 307

Contribution of W. Bengal to some of India's major Industries

(By percentage of quantity produced)

	Industry	*1968*	*1969*	*1970*
1	Cotton yarn	5.4	4.6	4.0
2	Cotton cloth/millmade	4.9	4.6	3.6
3	Paper and paper board	19.0	18.3	18 7
4	Sulphuric acid	10.9	7.7	6 8
5	Pig iron	30.4	31 1	25.6
6	Finished steel	21.7	26.3	22 9
7	Sewing machines	68.2	64 8	88.1
8	Electric fans	68.7	58.4	46.6
9	Railway wagons	50.6	52.9	48.2
10	Bicycles (complete)	19.2	16.9	18.7
11	Tea	24.4	22 5	23.5

Source: *Eastern Economist* Aug. 11, 1972.

Industrial activity in the State has been going down from 1966, mainly because of labour troubles. The main industries affected were, cotton cloth, paper, electric fans, steel ingots, jute textiles, pig iron, railway wagons, cotton yarn, finished steel, matches and sugar. All these industries have shown varying percentages of fall (1965-1970) from 12 per cent to 38 per cent.

The following table shows the impact of labour. unrest on industry.

Table 308

Deterioration in industrial climate of W. Bengal

	1961	*1968*	*1969*	*1970*
Working factories	5658	5737	5599	5612
Average daily employment (lakhs)	8.32	8.17	7 91	8.09
Industrial units closed down	123	139	188	320
Work stoppages	438	417	894	806
Mandays lost (lakhs)	50 2	67.2	93.8	94.3

Sources: 1. Government of West Bengal. *Economic Review*, 1969–70 and 1971-72. 2. *Budget statement*, by Mr Sankar Ghose, Minister-in-charge. Finance, West Bengal 1972-73 (March 25, 1972).

Literacy and Education

W. Bengal is midway in literacy among the states in India with 33.2 per cent (1971).

The number of schools, brought under the Government scheme in 1972-73 were as follows †

Primary schools	5,677
Secondary schools	550
Colleges	57

† Source: *Advt. by W. Bengal Government Ind. Express*, March 22, 1973.

Universities and number of students: University of Burdwan, Rajbati, Burdwan 36,067; University of Calcutta, Senate House, Calcutta 196,257; Jadavpur University, Calcutta 4,760; University of Kalyani, Kalyani 2,074; University of North Bengal, Rajaram-Mohanpur, Darjeeling, 26,191; Rabindra Bharati University, 6 4, Dwarakanath Tagore Lane, Calcutta 3,854; Visva Bharati, santiniketan

Table 309

Newspapers

(Dailies)

Name	*Place of Publication*	*Language*	*Circulation*
Amrita Bazar Patrika	Calcutta	English	102,605
Statesman	Calcutta and N. Delhi	English	176,225
Hindustan Standard	Calcuta	English	NA
Juganthar	Calcutta	Bengali	185,133
Sanmarg	Calcutta	Hindi	23,855
Anand Bazar Patrika	Calcutta	Bengali	NA
Vishwamitra	Calcutta	Hindi	NA

Weeklies with circulation of 50,000 and above-

Desh	Calcutta	Bengali	NA

Average Circulation Jan. June 1974.
Source: *ABC*

Tourism

Calcutta was until 1912, the capital of the Government of India It is now the commercial capital of India. It is also the centre of the great industries—jute, tea, hides and skins, coal and lac. Places of interest are: Victoria Memorial (Picture gallery and museum), Indian Museum, Zoological gardens, the Jain Temple, the Kalighat Temple, Belvedere House (originally the residence of British Viceroys when they visited Calcutta and now made the National Library), Raj Bhavan residence of the Governor of W. Bengal), Marble Palace, Fort William, Eden Gardens, Dalhousie Square and Dhakshineswar Temple.

Darjeeling is on the Himalayan slope and is one of the famous hill stations of India. It is 370 miles north of Calcutta. Places of inteiest are: Government House, Town Hall, Museum, Observatory Hill, Natural History Botanical Gardens, Birch Hill Park, Senchal Lakes, Ghoom Monastery and Tiger Hill.

Santiniketan in W. Bengal and 91 miles from Calcutta is the home of the famous Visva Bharathi University founded by Rabindranath Tagore.

UNION TERRITORIES

The Union Territories, listed in the 1st Schedule to the Constitution are now nine in number. They form part of the Union administration and remain under the control of the Paliament. The Constitution (Fourteenth Amendment) Act, 1962, authorised the Parliament to "create for any of the Union Territories" a body to function as legislature, or a Council of Ministers or both. In terms of this Amendment, the Parliament passed the Government of Union Territories Act 1963. Under this act,. three Union Territories-Goa, Pondicherry and Mizoram have since been granted autonomy. They have an elected legislature and a Council of Ministers such as the States of the Union have many. In some Territories, capital cities like Delhi and Chandigarh form the nucleus and draw the cream of the population. Some others like Goa or Pondicherry have been foreign enclaves, which have remained politically segregated from the rest of India and have followed their own independent paths of development.

One striking feature about the Union Territories is that they are generally more literate than the States The reasons are

Thus, Chandigrah is first in literacy among all States and Territories with 61.56 per cent. Kerala, a *State* claims the second rank with 60.42 per cent. Then the Territories form an unbroken series. Delhi (56.61), Mizoram (50.9), Pondicherry (46.02), Goa (44.75), Lakshadweep (L. M & A Islands) 43 66), and Andamans & Nicobar Islands (43.59). Next comes Tamil Nadu, a *state* with 39.46 per cent, closely followed by Maharashtra with 39.18 per cent and so on

ANDAMAN & NICOBAR ISLANDS

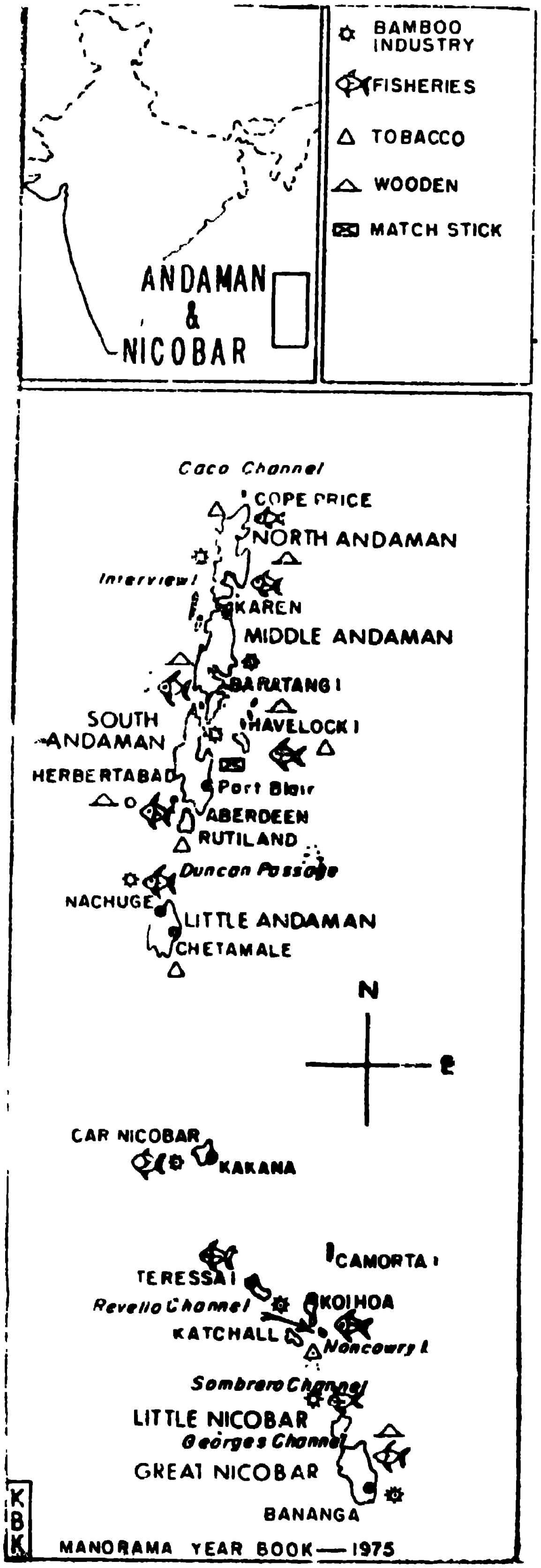
Area: 8,293 sq. km
Population: 115,133
Headquarters: Port Blair
Principal Languages: Andamanese, Nicobarese and Hindi
Religions: Hindus, Christians and Tribal
Chief Commissioner: Har Mander Singh
Chief Secretary: S. C Vajpei
Chief Justice: * (See W. Bengal)

The Andaman and Nicobar Islands are a group of 224 islands in the Bay of Bengal Of these, the Nicobar group comprises only 19 islands, while the rest make up the Andamans group. They are among the so-called overseas possessions of India.

The Andaman and Nicobar Islands are believed to have once formed part of the land mass of South East Asia. It is thought that there was a continuous mountain range going along the whole length of Andaman and Nicobar Islands which connected the Arkans of Burma (Cape Negrais) at one end to the Sumatra island, Indonesia, (Achin Head) at the other. About 150 million years ago, due to geological activity, the land round about these islands submerged and the summits of the mountain range and other elevated areas, standing out of the sea, became the islands of the present day.

In the 18th century, these islands became the scene of activities for the colonising European powers, the Portuguese, the Dutch and the English In 1869 the Brstish took possession of the islands from the Dutch. The British were first interested in these islands as penal settlements for Indian convicts. Indeed, many of the Indian convicts, sentenced for transportation for life, were taken over to these islands. With the British occupation of the islands, the contacts with the mainland of India grew. Many Indian traders, especially from Laccadive and Minicoy Islands—another British possession in the Arabian Sea—came for trade and established shops in these islands. But the most outstanding feature of British occupation was the spread of Christianity in these islands.

The Second World War and the consequent Japanese occupation of these islands from 1942-1945 brought the islanders a taste of foreign military occupation. The Japanese inflicted extreme torture and cruelty on the poor islanders and destroyed their homes and coconut gardens. In the process, the entire face of the islands



---

* Under Calcutta High Court.

was changed in a few years. After the evacuation of the Japanese, in 1945, the Islands as part of India, became free on August 15, 1947.

One beneficial result of Japanese occupation was the expulsion of the Indian traders, who had ruthlessly exploited the ignorant islanders. They had either fled from the island or were killed during Japanese occupation After independence, the Government of India, was keen that the traders do not return to exploit the people and destroy their culture. The Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Act was passed in 1956, under which entry into tribal areas was prohibited and no outsider could carry on trade or industry in the islands, without the licence of the Chief Commissioner.

The Government launched many programmes of development for these islands and the welfare of the people. With the increased activities of the Government, increased contacts with the mainland resulted These have greatly helped the islanders to bring about changes in their traditional ways of life

The People. In 1971, the population of the islands was 1,15,133. The Tribals numbered 18,012. The others were immigrants from the mainland.

Administration

On November 1, 1956 the Andaman and Nicobar Islands were constituted into Union Territory. The Territory is administered by the President of India aided by a Chief Commissioner and an Advisory Council of 5 members The seat of administration is at Port Biair. For the first time, elections for one representative for Lok Sabha were held during the fourth general elections in pursuance of the Union Territories Act 1963.

Economic Structure

Agriculture. The Principal crops are rice, coconut and arecanut. The estimated area under paddy cultivation is about 7,920 hectares. The production of foodgrains stood at 10,006 tonnes in 1970-71.

In 1973-74, nearely 10,000 hectares of land were brought under high yielding or improved varieties of rice.

Animal Husbandry. There is a veterinary hospital, 5 dispensaries, 16 outposts and one key-village centre in the Territory.

Forests cover an area of 7,468 sq. km. Out of this, 78 per cent is under evergreen and deciduous forests

Forest is the main natural wealth of the islands. These are being surveyed and demarcated so as to raise forest yields higher. In 1973-74, about 880 hectare of forest land, were brought under plantations of teak, padak and softwood.

Fishery. The waters around the islands are rich in fish and surveys are being carried out to determine the fishing potentiality. Fishermen are being encouraged to settle down at vantage points like Little Andaman and Campell Bay, and to carry on organised fishing.

Power. Electric supply in Fort Blair was started in 1950. The power supply has been exteaded to a number of places viz. Wimberlygunj, Mayurbunder, Diglipur, etc.

Industry. Industries comprise oil milling, plywood, coir and matches A number of training cum production centres have been started by the Government Saw milling is the main industrial ability

Literacy and Education

Educationally the Territory is backward and education upto Higher Secondary stage is free. Litaracy: 43,59. per cent

In 1973-74, 7 new primary schools were opened and 3 private schools were taken over 5 Junior Basic Schools have been upgraded as Senior Basic Schools and 2 Senior Basic Schools have been elevated as High Secondary Schools.

ARUNACHAL PRADESH

Area:	83,578 sq km
Population:	467,511
Head quarters:	Itanagar
Principal Language:	Tribal Dialects*
Chief Commissioner:	M L. Kampani
Chief Secretary:	H. S. Butalia
Chief Justice:	(See Assam)

Arunachal Pradesh** (Land of Sunrise is a thinly populated hilly tract, on the north east extremity of India It is bordered by Bhutan (west), Tibet and China (north), Burma (east) and by Assam (south). The entire area is mountainous except for small strips adjoining Assam. Dense forests cover more than two-thirds of the Territory

The People

The population of Arunachal Pradesh is predominantly tribal.

The 1971 census enumerated as many as 82 tribes. The tribals constitute about nine tenths of the population

"The principal tribes are, *Monpa*, *Apatani*, *Dafla*, *Tagin*, *Galong*. *Sherdukpen*, *Adi*. *Padam*, *Khampti*, *Singpho*, *Tangsha*, *Mislimi* and *Wanho*. These tribes speak their own tongues".

---

* About fifty distinct tribal languages and dialects are spoken. Each tribe is divided into a number of exogenous clans.

** See map of North East Area p. 451.

Administration

Arunachal Pradesh is administered by a Chief Commissioner, with headquarters in Itanagar. The Territory is divided into five administrative divisions, each under a Deputy Commissioner.

Panchayati Raj has been introduced in the territory. There are 32 Anchel Samithis Zilla Parishads and a Pradesh Council.

Table 310

District	*Area (sq km.)*	*Population (1971 census)*	*Head-quarters*
1 Kameng	13724	86001	Bomdila
2 Lohit	24427	62865	Tezu
3 Siang	23723	121936	Along
4 Subansiri	14797	99239	Ziro
5 Tirap	6907	97470	Khonsa

Economic Structure

Agriculture is the primary occupation of the people, though the supply of cultivable land is scarce. The traditional practice of jhumming or shifting cultivation is being slowly replaced by terrace farming. The people by and large live in poverty and backwardness

"In 1973 about 100 hectares of land have been made suitable for cultivation at a cost of Rs. 24,000 and 27,000 acres of land, were planted with improved varieties of paddy and maize.

Power. The total installed capacity in November 1971 was 1,626.5 kW which is expected to be 5,247.5 kW by the end of the Fourth Plan. Arunachal Pradesh had only seven electrified villages in 1961 but the number increased to 37 in March 1971.

Industry There are only small scale industries like weaving, spinning, tailoring, carpet-making, wood-carving, cane and bamboo work, painting, soap-making and pottery.

Literacy and Education

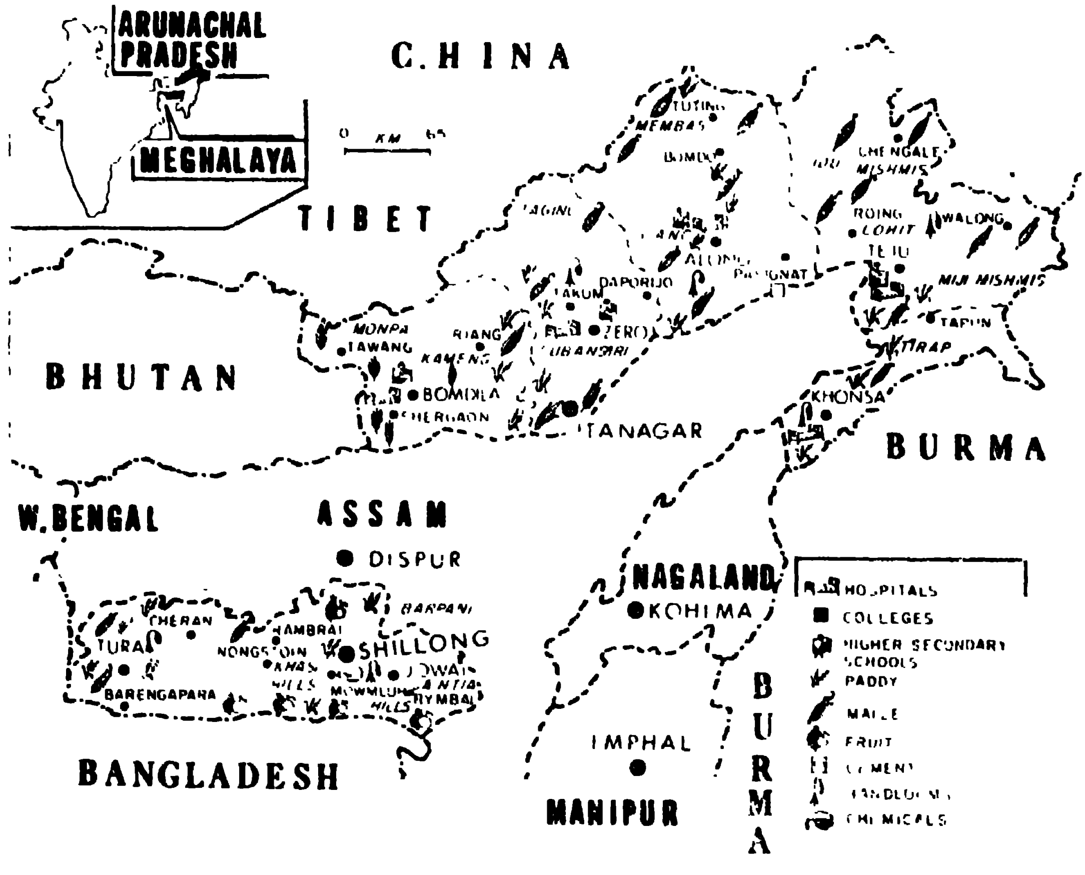
The Territory, unlike other Territories has the poorest percentage of literacy in India, (11.29 per cent).

During 1969-70 there were 571 educational institutions classified as follows:- Colleges-2, Higher Secondary schools-7, High Schools-9, Middle-47, L P-503, and Nursery Schools-3.

In 1973-74, 25 Primary Schools were opened and 3 Primary Schools upgraded to Middle Standard.

Public Health

There are at present 110 hospitals, dispensaries and Health Units in the Territory.



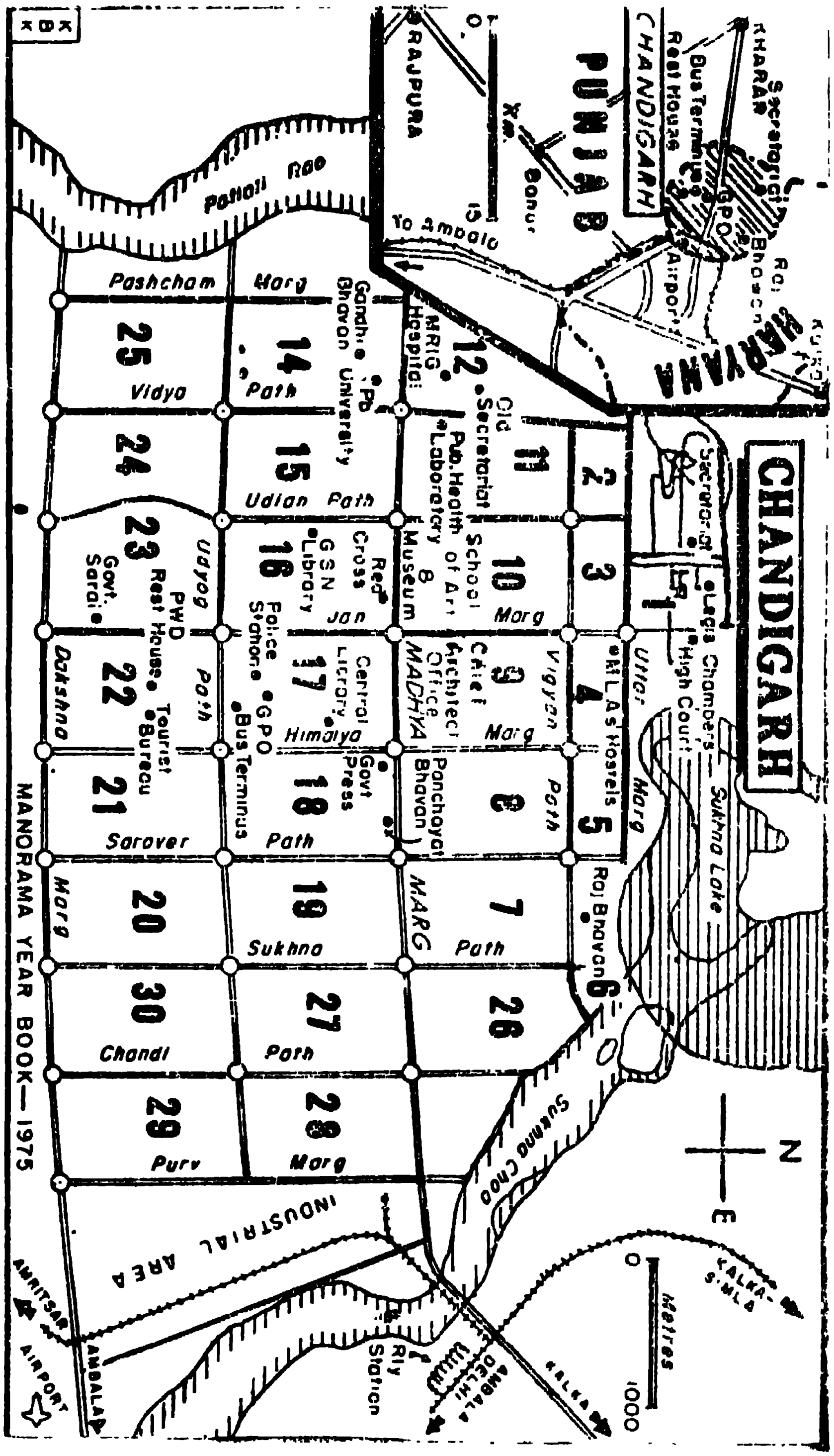
CHANDIGARH

Area:	114 sq. km
Population:	257,251
Headquarters:	Chandigarh
Chief Commissioner:	N. P. Mathur
*Chief Justice**	(See Haryana)

* Under the High Court of Punjab and Haryana.

The transformation of Chandigarh from a State Capital to a Union Territory is indicative of the tortuous turns of politics, that linguistic States have generated.

Punjab in undivided India, lost its capital Lahore to Pakistan, in the Partition. It became necessary for Indian Punjab to have a new capital. So Charles Edouard Jennert, the famous French



architect known as le Corbussier, was commissioned to design a new capital for Punjab. This is how Chandigarh came into being as the capital of Punjab.

The new Indian State of Punjab contained Punjabi-speaking and Hindi-speaking populations. A question of primacy regarding State language arose between Punjabi and Hindi. Neither was satisfied with equal status. The question dragged on for years until in 1966, it was decided that Punjab should be bifurcated between the two contending linguistic groups, Two linguistic states were thus formed Punjab, retaining the old name, covered Punjabi-speaking areas of Punjab, while Haryana, a new State embraced the Hindi-speaking areas. Chandigarh. the common capital, was declared a Union Territory.

Haryana will be given Rs. 20 crores by the Government of India—Rs. 10 crores in the form of a loan and the rest as grant—to construct its new capital within five years. The decsion, which sought to reconcile the conflicting claims of Haryana and Punjab, gave Haryana the towns of Fazilka and Abohar in Ferozepur district of Punjab along with over 104 villages in the Fazilka tahsil and six villages in the Union Territory of Chandigarh outside the capital area.

A Commission, to be presided over by a judge of the Supreme Court or High Court, will be set up to go into other territorial disputes between the two States.

Administration

Chandigarh is really a City State like Delhi, even though it is called again like Delhi—a Union Territory. Union Territory of Chandigarh is administrated by a Chief Commissioner. It has one representative in the Lok Sabha. The Chief Commissioner of Chandigarh has been vested with powers of a State government in respect of laws in force, in the Union Territory of Chandigrah and with financial powers analogous to those exercised by the other administrators of Union Territories.

Chandigarh Cenus—1971

State/District	Persons	Males	Females	Rural	Urban	Percentage of urban population 1971	Literate Population Males	Literate Population Females	Literate Population Percentage of literacy
Chandigarh U. T.	256979	146921	110058	23975	233004	90.67	97794	59575	61.24
Chandigarh Dt.	256979	146921	110058	23975	233004	90.67	97794	59575	61 24

Chandigarh, ranks 26th among the States and Territories of India, with a population of 257,251 representing 0.5 per cent of the total population of the Indian Union. In density of population, it is next only to Delhi, with a density of 2,254 persons per sq. km. The urban population living in the towns of Chandigarh and Mani Majra, make up 232,940 of 90 67 per cent of the total population, while the rural population in the periphery comes to 24,311 persons or 9.33 per cent of the total population for the Territory But in literacy, Chandigarh (61.24 per cent) outstrips all other States and Territories of India.

Industry. In addition to 7 large scale industries, 88 new small scale industrial units have been registered during the year, raising the total number of such units to 590 The annual production in the Industrial Sector is of the order of Rs. 12 crores and about 7,500 workers are employed there. The number of registered factories in the territory has gone up from 69 in 1969 to 160.

Education

During 1972-73 there were 44 primary 20 high/higher secondary schools. The enrolment for the year 1972-73 was as follows: Primary Stage 30,500· Middle stage: 13,100; Secondary stage: 7,100.

One new primary school has been started. One primary school has been upgraded to middle standard and double shift has been introduced in one High School. 7 technical institutions are functioning in the territory.

Power. Electricity has been Supplied to all the villages and they are being provided with link roads and piped water.

Health

16 hospitals and dispensaries are now functioning. Additional indoor accommedation has been provided by adding 40 new beds to General Hospital, Chandigarh.

DADRA AND NAGAR HAVELI

Area: 491 Sq. km
Population: 74,170 (1971 Census)
Density of Population: 152 per Sq. km (1971 Census)
Headquarters: Silvassa
Literacy 14.86 per cent
Languages: Gujarathi, Varle, Marathi, Dhodia, Konkani & Hindi
Administrator: Shri S. K. Banerji (Lt. Governor of Goa, Daman&Diu)
*Chief Justice:** (See Maharashtra)

This territory comprises of two pockets, Viz. Dadra with three villages and the other, Nagar Haveli consisting of the remaining 69 Villages. This territory is surrounded by the talukas of Bulsar District (Gujarat State) in the East and North and by Thana District (Maharashtra State) in the South and West. Thus this territory comprises of 72 Villages with ten administrative Patelads.

The territory was under Portugese occupation, when India became independent. It was in fact, part of the colonial possessions of the Portugese in India. In 1954, nationalist volunteers occupied the area, and demanded its incorporation into the Indian Union. By the Tenth Amendment to the constitution, the territory was formally recognised as a Union Territory on Aug 11, 1961.

Administration

The Territory is administered under the Dadra and Nagar Haveli Act, 1951. The Lt. Governor of Goa, Daman and Diu, is the Chief administrator. The Chief executive authority is the Collector, who has his headquarters at Silvassa.

Economic Structure

The Adivasis (tribals) comprise 87 per cent of the population. The Territory is therefore, back-ward culturally and economically.

Agriculture. Agriculture is the main occupation of Adivasis, who represent about 87 per cent of the total population of the Union Territory of Dadra and Nagar Haveli. Rice and Ragi are two major food crops, while wheat is also grown in some areas. About 17000 hectares of land are under cultivation. The major crops Paddy and Ragi were sown in 9,611 and 2,717 hectares respectively in 1973-74. In the absence of adequate irrigation facilities and water retention capacity, Agriculture depends almost entirely on rainfall.

The use of improved and high yielding varieties of seeds and other inputs have been increasing very substantially, indicating the adoption of modern methods of cultivation. Improved variety of Ragi has also introduced been in this territory. The areas under high yielding and improved varieties of Paddy were 2195 hectares and 3718 hectares respectively, during the year 1973-74 Improved variety of Ragi was sown in 455 hectares during the year.

Wheat was also sown as a second crop where irrigation facilities were available. Areas under high yielding and improved varieties of wheat were 159 and 49 hectares respectively.

Forest Forests occupy about 41.5 percent of the total area of the territory. The main products of the forests are timber, Khair, Sandal. Shisam. Shivan etc. These forests fall under Southern Tropical Moist deciduous forests Two wet nursaries are maintained for growing the seedlings required for plantation.

Soil Conservation. Under this Scheme the Adivasis are getting the benefit of 50% subsidy on the cost of the work. Work is carried out by manual labour and bulldozer. Terracing during 1973-74 was carried out on 258 hectares of land The target fixed for 1974-75 is 300 hectares

Animal Husbandry, Poultry & Dairy. One Veterinary dispensary and two veterinary aid centres gave free treatment to 4,980 animals during 1973-74.

During 1973-74, 12 cultivators were granted loans amounting to Rs. 20,000 for dairy development, and 6 cultivators were granted loans amounting Rs. 26,000 for Poultry development.

There is a Poultry breeding Centre at Silvassa, established by the Administration. 31,255 eggs were collected, 12,655 egges were sold, and 18,015 eggs were supplied under A N P. With a view to improving local breed of cattle, a premium bull centre with four premium bulls of Medium type 'Kankreji' are maintained. The milk yield of the Government Dairy Farm was 39,744 litres during the year 1973-74.

Industries. There is no major industry in the territory However there is an Industrial estate at Piparia, near Silvassa, where there 32 units at present. There are 20 other units working outside this estate The majority of the units are small scale industries. The products manufactured include Automobile Spare-parts, Opticals,

---

* Under Bombay High Court.

Pesticides, Cotton and nylon tapes & rapes, foam products, detergent powder, soap, biscuits, chemicals, wax candles, cement products and tiles, textiles, engineering goods etc. Proposals of 33 units have already been approved by the Directorate of Industries of the Union Territory. These units would produce Engineering goods, Plastic goods, Textile & Dyg. Printing process, Wooden Articles, Soap & Candles, Paper Board & other products. Tyres, Bricks, Electrical goods. Pesticides & Insecticides Formulations. At present about 900 workers are working in these industries.

Occupational Pattern. As per 1971 Census, the main occupation of the population is agriculture. Out of the population of 31,279, 25,320 are cultivators and 5,959 are agricultural labourers. According to the 1971 Census 3,387 persons are engaged in mining, live-stock forestry, fishing, orchards and allied activities and 308 in household industries The remaining 39,196 are non-workers.

Communications. 107.77 kms. of roads are black tapped, 30.97 kms water bound macadam, 15.84 kms, other metalled roads (hard muram surfaced) and 27 96 kms. other unmetalled roads (earth work). The total length of motorable roads is 144.74 kms At present, there are 42 government vehicles.

Power. Power for the territory is obtained through 11 KV transmission line from Vapi Sub-station of Gujarat Electricity Board Proposals for 66 KV sub-station at Silvassa has been approved by Govt of India. This will improve the capacity of the line to 10 MVA Out of 72 Villages in the territory, 18 villages have been electrified till 31st August, 1974 and the number of pumpsets/tubewells energised are 96.

Irrigation. There is no major or medium irrigation scheme in this territory However, this territory has a share in the Daman ganga reservoir Project, which is a joint venture alongwith Gujarat and the Govt. of Goa, Daman & Diu It is being implemented by Gujarat State and it will irrigate about 6,800 hectares of the territory when completed. Preliminary work of this project like construction of approach roads, residential colony etc. has been started

Lift Irrigation Schemes at Tigra, Kherdi, Khadoli-Tinoda (L. B), Khanvel-Bindrabin and Dadra have been completed and have started functioning Check dams at five villages have been constructed. The construction work of lift irrigation schemes at Khadoli Tinoda (Right-Bank and the extension of Lift Irrigation Scheme at Tigra are in progress. Minor irrigation through wells has been provided at five villages.

Public Health

Medical facilities are extended through the cottage hospital at Silvassa. Two dispensaries and two Primary health Centres are functioning in different parts of this territory A mobile dispensary gives medical facilities at the door of the Adiwasi-Villagers.

An X-Ray unit had been installed at the Cottage Hospital. The hospital also provides outdoor treatment for T. B and Leprosy patients.

Co-operation. The Gujarat Co-operative Society Act, 1961 has been made applicable to this territory w e f. 1-4-1965. At present 28 co-operative Societies of various types are functioning. Agricultural credit is routed through, service co-operative Societies.

Education

There are 144 Government primary schools, 12 grant-in-aid mission schools, one recognised unaided mission school, four pre-primary schools and four high schools The total enrolment in the primary schools was 10,054 pupils (6,620 boys and 3,434 girls) and in the high schools 850 pupils (588 boys and 262 girls). There are 8 government social welfare hostels including one Ashram type school at Rakholi for students belonging to Scheduled Castes, Scheduled Tribes and economicaly backward classes. At present there are two public libraries, one at Silvassa and one at Naroli.

DELHI

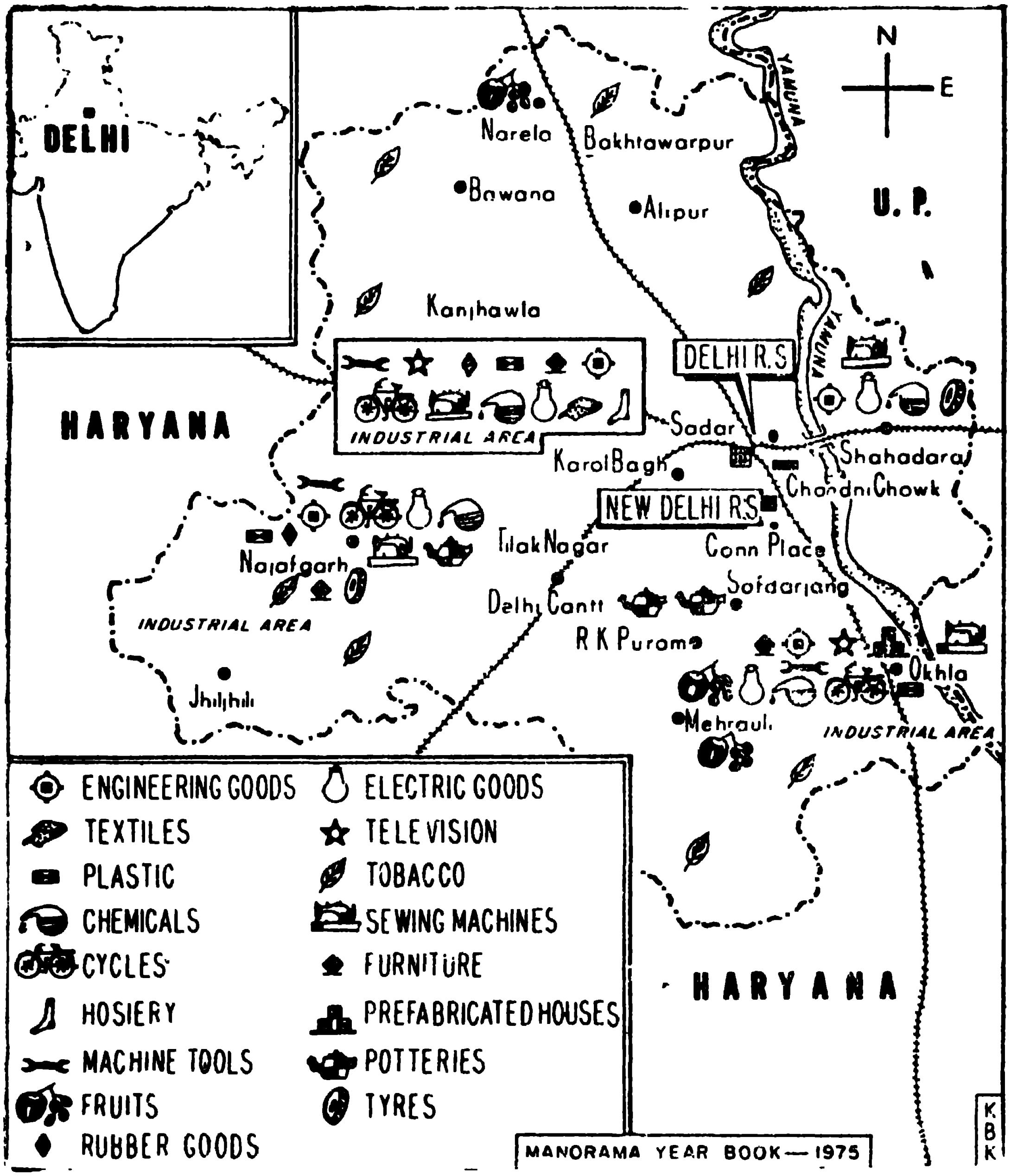
Area:	1,485 sq km.
Population:	4,065,698
Headquarters:	Delhi
Lieut Governor:	Krishan Chand
Chief Executive Councilor:	Radha Raman
Chief Secretary:	K. K. Srivastava
Chief Justice:	S. N Andley

The Territory of Delhi, shines with the reflected glory of a metropolis, that functions as the capital of India. But beyond the confines of the metropolis and shorn of its imperial associations, the Territory of Delhi, is no better than any other Territory of India.

History

The city of Delhi was founded in the 11th century AD by a Rajput Chieftain of the Tomara clan. The Chauhans obtained possession of the city from the Tomaras Prithvi Raj, the Chauhan ruler of Ajmer and Delhi made the city of Delhi famous by his heroic valour and romantic adventures. Delhi, under Prithvi Raj and Kanauj under Jai Chand, were the principal kingdoms of north India at the time There was keen rivalry between he two. Prithvi Raj brought matters to a crisis by carrying off Sangojata, the ovely princess of Kanauj, as his bride-father in the manner of the Scottish hero, Lochinvar This widened the breach between Delhi and Kanauj. It s said that Jai Chand was instrumental n persuading Muhammud Ghori of Afghanistan to invade India. Some historians doubt the veracity of this allegation. But, whatever that may be, there is no doubt that the invasion of Muhamud Ghori had far-reaching political consequences, not only for Delhi but for the rest of India, as well.

The first invasion of India, by Muhammud Ghori, was beaten back by Prithvi Raj in the first battle of Tarain in 1191. Next year, Ghori came back to avenge his defeat and in the second battle of Tarain (1192) the Rajput army was routed. Prithvi Raj was captured and put to death. Delhi thus passed into the hands of Muslim rulers, for the next six



centuries. Under the Mughal Emperors, Delhi became a world famous city.

In 1857, following upon the mutiny of Indian troops the British deposed the titular Mughal Emperor, Bahadur Shah and formally annexed Delhi. In 1912, the capital of British India was transferred from Calcutta to Delhi. A new city–New Delhi of imposing dimensions was laid out by the side of the old city Old Delhi–by the British Indian Government. Independent India, has retained this historic capital.

Administration

Delhi became a Union Territory on November 1, 1956. In order to enable a larger measure of association of the representatives of the people of the Union Territory with developmental activaties, Parliament enacted the Delhi Adminstration Act, 1956. Under this Act, Delhi has an elected Metropolitan Council consisting of 61 Members, five of whom are nominated by the President of India.

The Lt Governor is the Administrator. He is assisted by 4 Executive Councillors (one Chief Executive Councillor and three Executive Councillors) appointed by the President of India on the recommendation of the Union Home Ministry.

The entire Territory is covered by three Local Bodies viz. Delhi Municipal Corporation. New Delhi Municipal committee and Delhi Cantonment Board.

Economic Structure

Agriculture. Delhi has a total land area of 146,952 hectares, of which 1,886 hectares are forests, and 46,163 hectares are not available for cultivation. Other uncultivated land excluding fallow comes to 4,451 hectares. Net area sown is 70,986 hectares.

The Delhi Land Reforms Act, 1954 provides for the abolition of proprietory rights and the conferment of ownership of all tenants and subtenants. Over 8,000 tenants of different categories have acquired ownership rights in an area of about 38,000 acres. Against a target of 70,100 acres during the year 1973 74, 9925 acres of area have been brought under multiple cropping by the end of October 1973. Consolidation work was started in 10 villages involving an area of 16405 acres.

Animal Husbandry. The total number of livestock (1966) stood at 216,777 and poultry at 137,398. Activites of Delhi Milk Supply Scheme (1970) show that the daily production of milk is 172,000 litres of buffalo milk and 3,000 litres of cow milk.

Power. The total installed capacity in November 1971 was 252 M W through the various hydel and thermal stations. Delhi has the distinction of being the only Territory with cent per cent electrified villages.

Industry. The main industries of the Territory are airconditioners, electric motors, amplifiers, radio parts, automobile accessories, bicyle parts, lathe machines, drilling machines, power presses, safety razor blades, hand and powerloom weaving, hosiery, pottery, flour mills, vegetable oil mills and expellers, paints, and varnishes, rubber goods imitation jewellery, copper and brass utensils, wire netting, leather goods, sports goods tanning and fibre industry.

The total number of industrial units in Delhi is about 32,000 with an estimated investment of Rs 216 crores and an annual production of Rs 365 crores. More than 2 52 lakh persons are employed in these industries.

The Okhla industrial Estate, 7 miles south of Delhi deserves special mention as one of the biggest of its kind in the country. There are 35 factory sheds and 41 sports goods factories, within the industrial Estate. The Estate accounts for a major portion of the consumer articles supplied in Delhi.

Transport and Communication. Delhi naturally occupies a pivotal point in the net work of national railways, highways and airways. It is one of the biggest railway junctions in the country. All the principal inter State roads converge on Delhi. It has two air ports Palam and Safdarjung which link Delhi, not only to the different cities of India but also to all important cities in the world.

Delhi Transport Undertaking operated by the Delhi Municipal Corporation is the main transport concern within the city. DTU had 1,288 buses operating on 60 routes inside the city in 1970 71. This is in addition to 265 Private buses in DTU.

Table 311

Postal and Telephone facilities: Radio & Television sets in Delhi

	1968-69	*1969-70*	*1970-71*
Post Offices	350	351	351
Letter boxes	1,312	1,350	1,361
Telephones	108,501	121,045	133,591
Public Call Offices	935	1,079	1,412
Radios*	524,121	465,618	436,948
Television*	7,746	11,884	29,026

* Relates to calendar year.

Source: *Bureau of Economics & Statistics, Delhi.*

Literacy and Education

Delhi with 56.61 per cent literates takes the second rank among Territories (after Chandigarh) and the third rank among States and Territories put together (after Chandigarh and Kerala).

The number of Higher Secondary Institutions during the year 1970-71 was 514 Fourteen new Higher Secondary Schools have been opened in rural and urban areas and 6 schools have been merged with other schools during 1970-71.

The number of all types of institutions on general education at Pre-Primary, Primary, Middle and Higher Secondary Stage was 1,940 during 1970-71 and the total enrolment in these schools was 819,304 in that year.

To cope with the rush of students 19 Government, 1 aided, 1 un-aided Higher Secondary Schools (including 5 girls and 2 co-educational Higher Secondary Schools), 5 aided, 9 un-aided Middle Schools and 74 Primary Schools were opened during 1973-74. One Higher Secondary School was also opened by New Delhi Municipal Committee.

Universities· University of Delhi, Old Viceregal Lodge, Delhi-7 is a teaching and affiliating university. The medium of instruction is English and the number of students in August 1970 was 59,210.

Jawaharlal Nehru University, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi-11 has jurisdiction over the whole of India. It is a teaching and a research university. It has 500 students on the rolls for the Under-graduate, M A., Ph.D., and M. Phil. studies.

Table 312

Newspapers
(Dailies)

Name	*Place of Publication*	*Language*	*Circulation*
Hindustan	New Delhi	Hindi	148,280
Hindustan Times	,,	English	153,008
Hindustan Times Evening News	,,	,,	NA
Indian Express	,,	,,	95,049
Daily Milap	,,	Urdu	NA
National Herald	New Delhi & Lucknow	English	48,898
Nav Bharat Times	N. Delhi	Hindi	177,364
Pratap	N. Delhi	Urdu	28,259
Statesman†	N. Delhi & Calcutta	English	176,225
Times of India	N. Delhi	,,	91,661
Vir Arjun	,,	Hindi	22,539
Patriot	,,	Englih	NA

Weeklies with circulation of 50,000 and above.

Saptalik Hindutan	N. Delhi	Hindi	91,545
Sunday Standard	,,	English	102,251
Screen	Bombay Madras and N. Delhi	,,	109,609
Times Weekly	Bombay Ahmedabad and N. Delhi	,,	306,235

Fortnightlies and monthly magazines with circulation of 25,000 and above:

Kadambini	New Delhi	Hindi	40,275
Nandan	,,	,,	112,803
Parag	,,	,,	83,467
Shama	,,	Urdu	82,338
Sarita*	,,	Hindi	NA
Sushama	,,	,,	65,645

---

† See also, Newspapers W. Bengal,
* Fortnightly; others monthly magazines, Average circulation Jan--June 1974
Source: *ABC*

GOA DAMAN & DIU

Area:	3,813 sq. km.
Population:	857,771
Principal Languages:	Konkani & Marathi
Capital:	Panaji
Chief Minister:	Mrs, Shashikala G. Kakodkar
Lt. Governor:	S. K. Banerjee.†
Leg. Assembly Speaker:	N. S. Fugro
*Chief Justice:**	See Maharashtra

Physiography

Goa, Daman and Diu (G D D) are three territories on the west coast of India lying far apart from one another. They have come to form one political unit because they were liberated from Portuguese rule at the same time and added as such to the Indian Union· The three territories are situated within the area covered by Maharashtra and Gujarat States.

---

† Concurrently Administrator of Dadra and Nagar Haveli.
* Under Bombay High Court.

Goa is on the Konkan coast. Daman lies on the Gujarat coast. Diu is a tiny islet on the southern fringe of the Kathiawar peninsula.

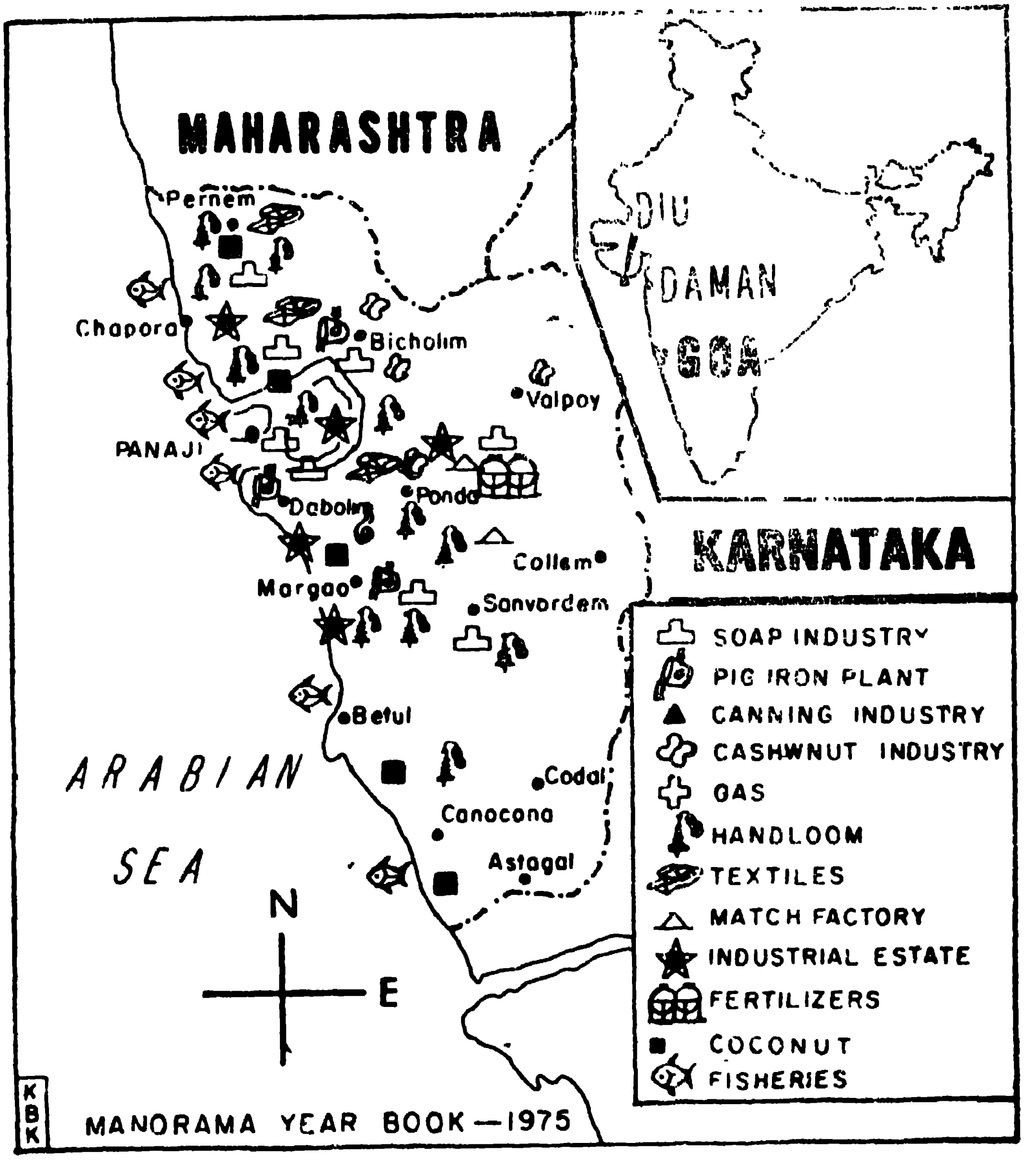
The boundaries of Goa are defined by the Terakhol river, which separates it from Maharashtra, in the north.Karnataka State bounds it in the east and south, and the Arabian Sea in the west.

Goa has a hilly terrain, especially on its eastern side which lies in the Sahyadri Ranges. The important rivers, flowing westward and providing a net-work of internal waterways are Mandovi, Zuari, Terakhol, Chapora and Betul which are navigable for a total length of 230 km. The most picturesque region is the lower basins of the Mandovi and Zuari.

Daman is bounded on the north by the Bhagwan river, on the east by Gujarat State, on the south by the Kalem river and on the west by the Arabian Sea.

Daman district is divided by the Damanganga river into two parts. Three rivers flow through the territory namely, the Bhagwan river running along the northern boundary, the Kalem river forming the southern boundary, and the Damanganga river lying in between.

Diu,a tiny island in the Gulf of Cambay near Veraval port, is separated from the southern extremity of the Saurashtra peninsula by a narrow channel running through a swamp. The island is connncted with the mainland by a narrow channel on the north. The channel is navigable only for



fishing boats and small countrycrafts. The topography is generally plain, the hillocks attaining a maximum height of 30 metres. This small excellent harbour enables vessels to lie at anchor in two fathoms of water.

Climate. The climate of Goa is warm and humid. There is little variation in temperature over a year. In the western half of Goa, the land is 100 metres in altitude, the normal rainfall varies from 90 to 120 inches (2,800-3,500 milimetres) and the year round temperature ranges from 70° to 90° Fahrenheit (22° to 32° Centigrade). In the eastern half, where the hills and mountains rise to higher altitudes (maximum 1,200 metres above the sea level), temperature variations are wide and the rainfall is considerably heavier (up to 300 inches). Daman has a mild and humid climate, while Diu island has a sultry climate.

History

Goa was a centre of maritime trade from very ancient days. Politically it remained a feudatory of the great Deccan powers, one after the other. The Satavahana dynasty held sway in Goa and nearby areas from the 2nd century BC. In the 6th century AD Goa passed under the Chalukyas of Badami,who became supreme in Deccan. In the 8th century, (AD753) the Rashtrakutas displaced the Chalukyas. In the 10th century, (AD 973) another branch of the Chalukyas, the Chalukyas of Kalyani, overthrew the Rashtrakutas and established their suzerainty in Deccan. In the 11 th century(AD 1020) the Kadambas came into power in the west coast. The Goa Kadambas were a great maritime power.

From the 13th century the Kadamba Kingdom was subjected to various attacks from the Yadavas of Devagiri, and from Muslim powers, especially, the Bahmini Sultans (1349-51). In the 15th century Goa became part of the Vijayanagar Empire but was once again conquered by the Bahminis in 1471. When the Bahmini Sultanate broke up, Goa came under the Adil Shahi Sultans of Bijapur from whom the Portuguese captured Goa in 1510.

Alfonso de Albuquerque, the Portuguese Governor at Goa,made it the headquarters of the Portuguese possessions in India. In 1531 Daman on the Gujarat coast, 70 miles from Bombay was seized by the Portuguese. In 1539 the Shah of Gujarat formally ceded the territory to the Portuguese. The island of Diu, off the south-east coast of Kathiawar (Gujarat) was captured in 1534. Under the Portuguese, Goa prospered greatly in trade. In 1843 the city of Panaji in Goa was made the capital of Portuguese India.

The Portuguese territories of Goa, Daman and Diu were liberated from foreign rule by the armies of the Indian Union on Dec. 20, 1961. Under the Constitution (Twelfth Amendment) Act, 1962 G D D was included in the First Schedule to the Constitution as a Territory of the Indian Union.

The Constitution (14th Amendment) Act 1962 introduced Article 239-A in the Constitution of India, which empowered Parliament to enact laws for the creation of Legislatures and Councils of Ministers for the Union Territories of Himachal Pradesh, Manipur, Tripura, Goa, Daman and Diu, and Pondicherry. In pursuance of the Constitutional Amendment, Parliament enacted the Government of Union Territories Act 1963. The present Union Territory of Goa Daman and Diu with a Legislature and a Council of Ministers and its own Consolidated and Contingency Funds came into existence on December 20, 1963.

One of the first political controversies to raise its head in Goa was the question of merger with Maharashtra. Opinions on this question were sharply divided. The Government of India decided to take an opinion poll and settle the question accordingly. In 1966 the Parliament enacted the Goa. Daman and Diu (Opinion Poll) Act. In accordance with the provisions of this Act, an opinion poll was held on Jan. 16, 1967 to ascertain whether Goa, Daman and Diu wanted to be a Union Territory or to merge with the adjoining States of Maharashtra and Gujarat. Goa, Daman and Diu voted to continue as Union Territory.

Administration

The Goa region has been declared as one district with a district magistrate and two sub divisions—Panaji and Mormugao—and 11 talukas. Daman and Diu have no sub divisions. The Daman region is under the charge of a Collector while Due is in charge of a civil administrator.

Table 313

Districts	*Area (sq. km.)*	*Population (1971 census)*	*Head-quarters*
1. Daman	72	38,739	Daman
2. Diu	40	23,912	Diu
3. Goa	3,701	795,120	Panaji

Economic Structure

With an area of 3,813 sq. km. and a population of 857,771 (1971' G.D.D. has a density of 225 per sq km as against 182 for all India. The pressure of population on land is therefore much greater than that of neighbouring states, 163 for Maharashtra and 136 for Gujarat.

Land Utilisation. The total geographical area of Goa, Daman and Diu is 3.71 lakh hectares. Of this, net area sown is 1.34 lakh hectares, or 36 per cent. About 28 per cent of the land is covered by forests. The land put to non-agricultural uses, cultivable waste and barren and unculturable land together constitute 36 per cent of the geographical area.

The area sown more than once is only 0.4 per cent of the net area sown.

Agriculture. Paddy is the staple crop of the Territory covering 44,699 hectares of land. Of this area, 6,000 hectares are under *rabi* cropping and the rest under *kharif*. Despite this substantial area, Goa is still suffering from a deficit of about 20,000 tons of rice, presently being imported annually. *Nochini* (ragi) is the next important food crop of the Territory covering about 2,000 hectares.

Table 314

Crop-wise distribution

Crops	*Area in hectares*
Paddy	44,699
Pulses and inferior millets	23,781
Sugar cane	675
Vegetables	300
Coconuts	18,496
Arecanut	1,320
Cashewnut	32,518
Fruit orchards	7,065
Bamboos	580
Forest area (in sq. miles)	425

Irrigation. With a view to bringing large areas under irrigation, five projects have been planned—Salauli in Sanguem taluka, Anjuna in the Bardez taluka, Sonal Ustem in Satari and Bidifator and Dudhsagar in Sanguem. Besides these, the Tilari project is also being considered for construction in collaboration with the Maharashtra State since its tail waters command extensive lands in the Bicholim and Bardez talukas. The Tilari, Salauli and Dudhsagar projects would be major irrigation schemes. The projects, when completed, will bring large areas under irrigation and enrich the Territory substantially.

Forests. The forests in Goa constitute only 29 per cent of the land area and they are in a very deplorable condition owing to the lack of scientific management over the centuries. This Territory is not self-sufficient in respect of large size timber and the deficit will last for some time to come.

Soon after its inception in 1963, the Forests Department embarked on an ambitious planting programme of species of economic importance and of quick growing character. These plantations on maturity will prove to be an important source of raw material for wood-based industries which will accelerate the pace of industrialization in this Territory.

Table 315

Area Planted

('000 hectares)

Name of Species	*1967-68*	*1968-69*
Eucalyptus	705.52	998.93
Teak	579.75	437.27
Cashew	265.80	649.00
Rubber	6.00	25.00
Bamboo (interplanted with Eucalyptus)	211.00	20.00
Casuarina	10 00	38 00
Sawar	—	—
Mango (in Anjedive)	—	1.00

Fisheries. Nature has endowed Goa with considerable marine and inland fisheries potential. This Territory has a 100 km coastline, 250 km long inland waterways and a number of small fresh water tanks coyerinng an area of 100 hectares. The coast is full of creeks and estuaries providing good shelter for fishing craft. The coastal and inshore waters of Goa are known to be rich in aquatic resources and shoals of mackerel and sardines regularly visit the shores.

The marine fish production of Goa coast is estimated to be in the neighbourhood of 20,000 to 22,000 tons per year, The catch consists of mackerels, sardines, prawns, seer fish, mullets, cat fishes, etc. A major portion of the fish catch comprises mackerels and sardines which form nearly 70 per cent of the total fish production.

Minerals. The discovery of bauxite deposits in Goa has given a new dimension to the mineral wealth of this Territory. Mineralogically the Goa bauxite is a trihydrate unlike the other bauxites of Indian origin. The chemical grades vary from the low metallic grade to a very pure chemical type. The intermediate grade is in good demand in foreign countries.

Goa has long been known as a centre of mining—especially of iron ore. Some of the biggest industrial houses of India are located in Goa. In 1973, Goa exported iron ore valued at Rs. 45 crores. For a small state, with a population of only eight lakhs, this performance is remarkable.

Table 316

Ore Production

(Tons)

Year	*No. of mines working*	*Iron ore*	*Ferro-Manganese*	*Manganese*
1962	358	5440491	208581	87754
1963	267	5509438	145726	48341
1964	217	6051925	65564	36065
1965	208	6584061	77236	33286
1966	201	6718151	66689	22102
1967	190	6750511	18485	24297
1968	153	6856480	15716	35698

Power. The per capita consumption of electricty in the Territory was 9 kWh as compared with the all India figure of 58 kWh in 1966-67. Since then, this figure is said to have risen to over 82 kWh.

At present there are some 17 diesel plants with an installed capacity of 10 MW. Most of this power is utilized in the mining industry or for lighting in the bigger towns. The neighbouring States of Maharashtra and Karnataka have been supplying electricity to Goa. The electric power used in Daman and Diu is from the Gujarat Electricity Board.

Industries. Before liberation, this Territory had a neglected industrial complex consisting of a large number of rice, flour and oil mills, a few saw mills, workshops, soap manufacturing units, cashew factories, brick manufacturing units, a tyre retreading unit and a carbon dioxide factory.

Since liberation, Goa has made rapid strides in industry. Large scale industries like textile mills, pelletization plants, breweries, steel-rolling mills, rubber factories, fertiliser and pesticide units have come up in Goa. The leading industrial houses are mentioned below.

Table 317

Major Industries

	Name	*Place*	*Capacity*	*Capital (Rs.)*	*Year started*
1	Chowgule & Co. Pvt. Ltd. (Pelletization Plant)	Pale, Usgao	500,000 tonnes	27.5 million	1967
2	Chowgule Co. Pvt. Ltd. (Textile Mill)	Xaldem, Quepem	25,000 spindles	20 ,,	1970
3	Pilsner Breweries India Ltd.	Arlem, Salsette	2,500 ml beer	13 ,,	1970
4	Goa Flour Mill (Wheat Products)	Chicalim	n. a.	2 ,,	1967
5	Goa Steel Rolling Mill (Steel Rolling)	Bicholim	n. a.	1.4 ,,	1966
6	Curti Chemicals Pvt.Ltd. (Potassium permanganate)	Curti, Ponda	n. a.	2.4 ,,	1966
7	Salgaoncar Industrial Gases Pvt. Ltd.(Acetylene gas/Oxygen gas)	Cortalim	A.G.90.00 cu. m. O.G.1.50 cu.m.	0.98 ,,	1966
8	Associated Breweries and Distilleries(Breweries and Distilleries)	Cortalim	1.5 million btls of beer p.m. and 12,000 btls. cashew brandy p. m.	1.25 ,,	1970
9	Medowell & Co. Ltd. (Indian made foregin liquors)	Betora	0.750 mill. lts	2.5 ,,	1970
10	Indian Hume Pipes & Co. Ltd. (R. C. C. pipes and poles)	Old Goa	n. a	n.a.	The factory is being set up
11	Ciba of India Ltd. (Pesticides and formulations)	Cortalim, Ilas	1.296 tonnes of pesticides and 1,986 tonnes of formulations	28 million	1972
12	Madras Rubber Factory	Usgaon-Ponda	3 lakh tyres and tubes per year	n.a.	1973

Literacy and Education

Goa, Daman and Diu together have a high rate of literacy with 44.75 per cent.

Table 318

Educational Institutions 1972-73

	No. of Schools	*No. of Pupils*	*Boys*	*Girls*
* Primary	1,047	101,704	56,916	44,788
* Middle	365	42,306	25,287	17,017
* Secondary	193	31,507	19,376	12,131
No. of Colleges				
Arts & Science	5	4,536	2,862	1,674
Others	7	1,562	204	1,766
University Post Graduates Centre, Panaji ..		174	115	59

---

* Figures are for 1791-72.

In 1973-74 enrolment of primary school children (6-11) has increased to about a lakh and forty five thousand, while Middle School admissions have gone up to about 30,000. The College admissions have also grown from about 5,600 in 72-'73 to nearly 7,500 in 73-74.

Table 319

Newspapers

(Dailies)

Name	*Place of Publication*	*Language*
Navhind Times	Panaji	English
Nav Prabha	,,	Marathi
Gomantak	..	,,
Rashtramat	Margao	,,
O Herald	,,	Potruguese/ English
Uzvadd	Panaji	Roman/ Konkani English
Goa Monitor	,,	,,

Tourism

Handicrafts of Goa attract tourists from all parts of India and from foreign countries as well. Bicholim is famous for its brass work. The ivory carvings of Diu are well-known all over the country.

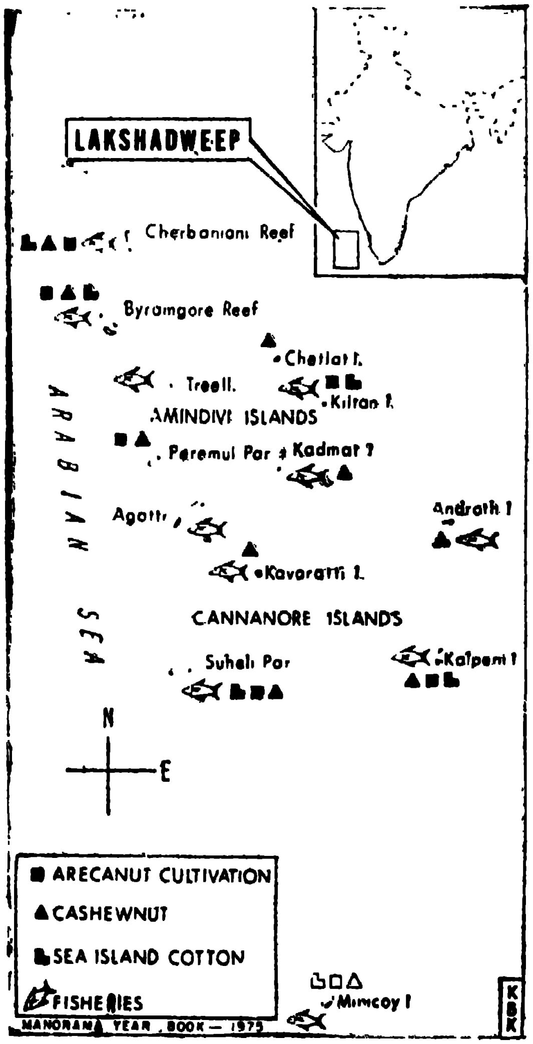
LAKSHADWEEP

Area:	**32 sq. km. (includes uninhabited islands)**
Population: (1971 census)	**31810**
Headquarters:	**Kavaratti**
Administrator:	**W. Shaiza**
Chief Justice:†	**See Kerala**

History. The Laccadive, Mincoy and Amindivi islands (renamed as Lakshadweep, with effect from 1-11-1973) constitute the smallest Union Territory in India. These islands were part of the state of Madras until the reorganisation of States in 1956. On 1st November 1956 they were constituted into a separate Union Territory. The islands were relatively undeveloped and had remained backward on account of their inaccessibility from the mainland. They were declared as 'backward tracts,

---

† Under Kerala High Court.



under the Government of India Act 1919 and as "excluded Areas" under the Government of India Act 1935. On the commencement of the constitution, they were declared as "Scheduled Areas" and administered under the Fifth Schedule to the constitution. With the Islands being made into a union territory, the need for modernising the administrative set up including the judicial set up was realised and two regulations called the Laccadive, Minicoy and Amindivi Islands (Laws) Regulation and the Laccadive Minicoy and Aminidivi Islands (Civil Counts) Regulatton were promulgated for the Islands towards the end of 1965.

Administration

The Territory consists of an archipelago of coral islands and open reefs lying scattered in the Arabian sea, some 200 to 400 kms off the west of Kerala, between 8° and 12° north latitude and 71° and 74° east longitude. There are in all 27 islands of which 17 islands are uninhabited.

Table 320

Area and Population

Island	*Area (sq. km)*	*Population*
Minicoy	4.4	5342
Kalpeni	2.3	3152
Androth	4.8	5425
Agatti	2.7	3155
Kavaratti	3.6	4420
Amini	2.6	4542
Kadmat	3.1	2416
Kiltan	1.6	2046
Chetlat	1.0	1200
Bitra	0.1	112
Total		31810

The entire Union Territory has been divided into four Tahsiis. A Tahsildar is in charge of each Tahsil with headquarters at Minicoy, Androth, Kavaratti and Amini Islands. The four Sub Treasuries in the islands are attached to the four Tahsildar's offices with Tahsildar as Sub Treasury Officer. The Amin and the Gumastha in each island constitute the basic revenue establishment.

The President of India extended 126 pre-Constitution Acts to this Union Territory. Of these 60 Acts have been enforced already. Besides these Acts of the Parliament, the President has promulgated for this Union Territory, certain regulations to carry on (1) Survey Operations (2) Co-operative movement (3) Land reforms, Settlement operations and land revenue (4) Debt conciliation and grant of loans (5) Enforcement of Metric system of weights and measures (6) Registration of Births and Deaths (7) Protection of Scheduled Tribes against alienation of their landed properties to non-scheduled tribes (8) Constitution of Home Guards (9) Constitution of Civil and Criminal courts etc.

Shri P. M. Sayeed who was the first elected member to Parliament was re-elected uncontested in the 1971 election. Advisory Committee associated with Home Minister, Advisory Council associated with Administrator and island and U. T. level National Integration councils constituted in this Union Territory assist the local administration and police to maintain law and order and to guard the security of the islands.

Agriculture

The staple products of the Territory are coconuts and coir. Coconut is the main crop of agricultural importance occupying the entire cultivable area of 2855 hectares. The total palm population is 0.56 millon with 0.4 million bearing trees. The average production is 7,420 nuts per hectare per year with an average yield of 50 nuts per palm which is definitely more than average production figures of the major coconut producing countries. Fruit plants like Banana, Papaya, Guava, Sapota and some citrus varieties and drumstick plants are cultivated in the coconut garden as inter-crops. Agricultural Demonstration farms of the Administration in all islands supply vegetables to people.

The Islands produce copra, coir, jaggery, vinegar and fish. Trade in coir is monopoly of Administration and is being carried on as a welfare measure on a no-profit-no-loss basis, by bartering rice for coir. To prevent the exploitation of the Islanders, the entire copra produce is entrusted to the Co-operative societies which were formed in all the Islands and they market it in mainland through Laccadive Co-operative Marketing Federation. The average copra produced is about 1670 tonnes per annum, of which 1500 tonnes are sold through Calicut and Mangalore markets. The remaining copra is crushed locally for edibie oil.

Co-operation.

There are 33 Co-op. Societies in all islands. The nine Supply and Marketing Co-op. Societies covering inhabited islands supply all essential items including rice, sugar and kerosene oil on ration cards at prices fixed by Aminlstration. There is no private trade in these commodities.

Power.

Out of the ten inhabited islands, nine had been electrified by April 1974. The remaining island Bitra, the smallest island of this Union Territory, is expected to be electrified during 5th Plan period. The installed capacity of the the generator sets in this Union Territory is 841.12 kW at the end of the year 1973-74.

Industry.

The main industry is the production of coir. The Coir Production Centre, Kadmat started under special employment programme produced 10.237 metric tonnes of Anjengo variety coir yarn. 0.98 metric tonnes of coir ropes and 193 nos. of mats giving employment to 27 females and 4 males of this Union Territory.

The Curled Fibre Factory at Androth produced 24 tonnes of fibre and gives employment to sixteen labourers. The Hosiery factory Kalpeni gives employment to eight persons. The Unit produced 2550 nos. of various types of baniyans and drawers. Fish drying and gur making are also the leading industries providing employment to the islanders. The Handicraft Society established in 1974 started producing mounted coral flowers, fancy articles from coconut shells, etc. which are attracting visitors.

Education.

Education is free at all stages. Lakshadweep, in spite of its backward conditions, has achieved a good rate of literacy with 43.66 per cent.

The Territory has at present 42 educational institutions, viz, one Junior College, one Higher Secondary School, Six High Schools, seven Senior Basic schools, twenty Junior Basic schools including Feeder schools and seven Pre-Primary schools. The total enrolement of students is 8092 including 3300 girls. The number of teachers is 359. The number of students per teacher is 23. To encourage girls education, three S. B. Schools (One complete and two incomplete) and four J B. Schools are functioning in this Union Territory. A separate girls section is functioning in High School Kalpeni.

Ninety one students from various islands are studying for various courses on the mainland. Scholarships and full tution fees are awarded to students who take post-matric studies outside the Territory. Students residing in the hostels attached to institutions are allowed free boarding and lodging facilities instead of scholarships. Under half-a-million Job programme, 22 candidates of the educated unemployed were deputed to undergo various training courses as detailed below:

1.	Librarian Training Course	9
2.	Typewriting	4
3.	Teachers Training Course	6
4.	Nursery Teachers	3
	Total	22

Those who have completed the training have been employed in the Administration already.

Health. Every inhabited island is having either a hospital or a Primary Health Centre with one or two Doctors, one Health Inspector each and other para medical staff. They are also well equipped with medicines to be supplied free

Veterinary. Dairy farm at Kavaratti and Poultry farms at Kadmat, Androth, Minicoy and Kalpeni are supplying milk and eggs. All the remaining islands will be covered in 5th Plan.

N. E. S. Blocks: Four special type blocks cover the entire Union Terriotory and locally recruited trained Village Level Workers are functioning in all islands.

Transport & Communications: Two ships maintain regular mainland/islands steamer service and launches/boats supplement inter-island transport.

Each island has a Wireless station of P & T Department. Kavaratti, Minicoy and Androth have local telephone exchanges. The Kavaratti (Headquarter) exchange is connected to Calicut by R/T link enabling trunk calls to any place in India.

Tourist facilities are being developed

Harbour facilities. Lakshadweep Harbour Works is undertaking this work successfully in all inhabited islands.

MIZORAM

Area:	23,980 sq. km.
Population:	321,986
Headquarters:	Aizwal
Principal Languages:	Mizo and English
Main Religions:	Tribal and Christian
Lt. Governor:	Shanti Priya Mukherjee
Chief Minister:	Chalchhunga
Leg. Assembly Speaker:	Thansanya
Chief Justice:	See Assam.

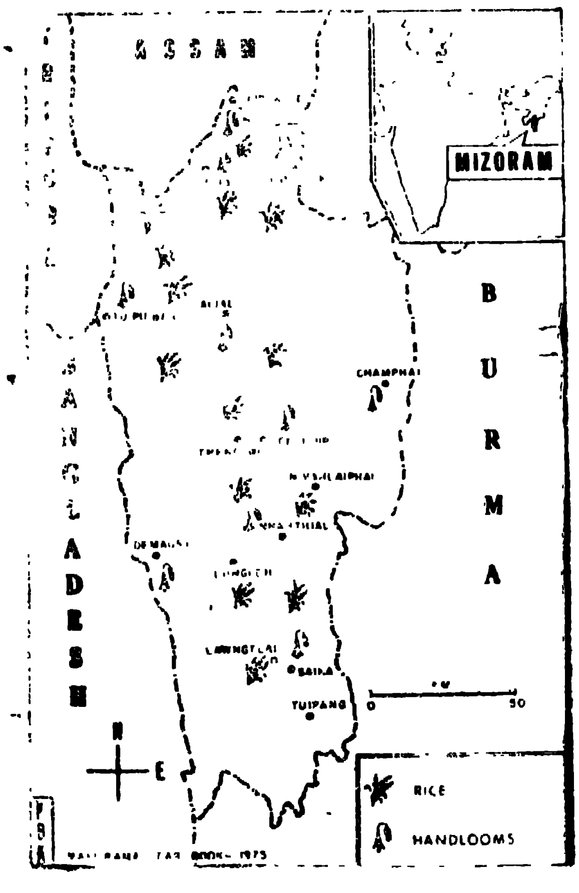
Mizoram, in the local language means the *Land of Mizos*, *Mizo* itself means *highlander* (mi=person and zo=hills or uplands). Under the British administration, Mizoram was known as Lushai Hills District. In 1954 by an Act of Parliament the name was changed to Mizo Hills District. In 1972, when it was made into a Union Territory, it was named Mizoram.

Physiography

Mizoram occupies the north-east corner of India. It is flanked by Bangladesh and Tripura in the west and Chin Hills (Burma) in the east and south. In the north, it is bordered by Manipur and Assam.

Mizoram is a land of hills. The hills run in ridges from north to south. They have an average height of 900 metres, the highest point being, the Blue Mountain (Peak) in the south, which rises to a height of 2165 metres. The hills are steep and cut apart by rivers, which have created deep gorges. The terrain, on the whole is mountainous, except for low depressions amid hills, where wet cultivation is practised.

Mizoram has a pleasant climate–generally cool in summer and not very cold in winter. The hills of Mizoram, intercept the south west monsoon, causing heavy rains. The average rainfall, between May and September is 254 cm a year. Aijal in the north records an annual railfall of 208 cm. while Lunglesh, in the south records 350 cm.



History

The Mizos belong to the Mongolian race. They seem to have settled at first in the Shan State of Burma. Two of the tribes, the Lushai and the Hmars, left Burma and moved westwards into India. They occupied the Lushai Hills.

During the British administration, the Mizos raided British territories and even attacked fortified positions. The British army moved against the Mizos and occupied their territory. It was annexed to British India in 1891. In 1898, the entire Mizo territory, was formed into the Lushai Hills District and made a part of Assam. Although the Mizos were subjugated, the British did not interfere with their internal administration. The Mizo Chiefs carried on the day-to-day administration in the traditional manner.

After 1959, Mizoram was rocked by two major occurrences– a famine and a rebellion. The famine was caused by the gregarious flowering of thorny bamboos–which occur at intervals of 40 to 50 years. When bamboos flower the rats gorge themselves on the bamboo seeds, and multiply at incredible rates. They destroy all crops, thus causing famine. The famine, in its turn, led to a rebellion in 1966. The rebellion was suppressed. By 1968, Mizoram returned to normal.

The People. The Mizos are divided into various tribes —the Lushais, Pawis, Paithes, Raltese, Phangis, Hmars, Kukis, Maras, Lakhers, etc. The Mizos came under the influence of British Christian missionaries in the nineteenth century, Many of the Mizos became Christians. One beneficial result of missionary activity was the spread of education. The Mizo language had no script of its own. The missionaries introduced the Roman script for Mizo language and started teaching English also. The cumulative result was a high percentage of literacy 50.9 per cent, which is surpassed in India only by Chandigarh, Kerala and Delhi. Some of the tribes are more educated than the others -the Lushais, for instance showed a literacy percentage of 86. The majority of the tribes are Christians and speak Mizo and English. But some tribes on the border, like the Chaikmas are Buddhist and speak Bengali.

Administration

Mizoram has a single chamber legislature consisting of 30 members. Mizoram has three districts. They are Mizo Hills, Lunghleh and Chhimtui.

Economic Structure

Land is the common property of the village and individuals have no separate holdings. Recently, however lands are being assigned to individuals, so as to organise terrace-farming and orchard plantations.

The general agricultural practice is *jhumming* or shifting cultivation. This is being steadily discouraged and people are being persuaded to take to modern farming.

Agriculture. Over 87 per cent of the people of Mizoram are engaged in agricultural pursuits. In the hill slopes, maize and paddy are cultivated. Other crops grown are pulses, sugar-cane, chillies, ginger, tobacco, vegetables, turmeric, potatoes, bananas and pineapples. Shift cultivation is ordinarily practised. The production of foodgrains came to 37,232 tonnes in 1970-71.

Forests cover 20 per cent of the geographical area. Important forest products are timber, bamboo, cane and agar.

Power. The total installed capacity in November 1971 was 891 kW which is expected to be 2,391 kW in due course.

Industry. There is no major industry in Mizoram. Handloom and handicrafts are the only cottage Industries.

Education

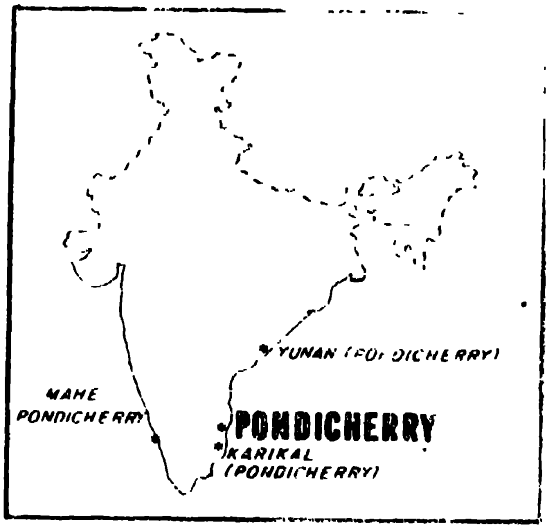
Almost every village has a government or a private school offering education from standards I to III in vernacular and English. As on June 30, 1972 over 90 per cent of the children of school going age attend schools. There are about 53,000 students in the primary schools. The Territory has 143 M, E. schools, 38 high schools and three colleges.

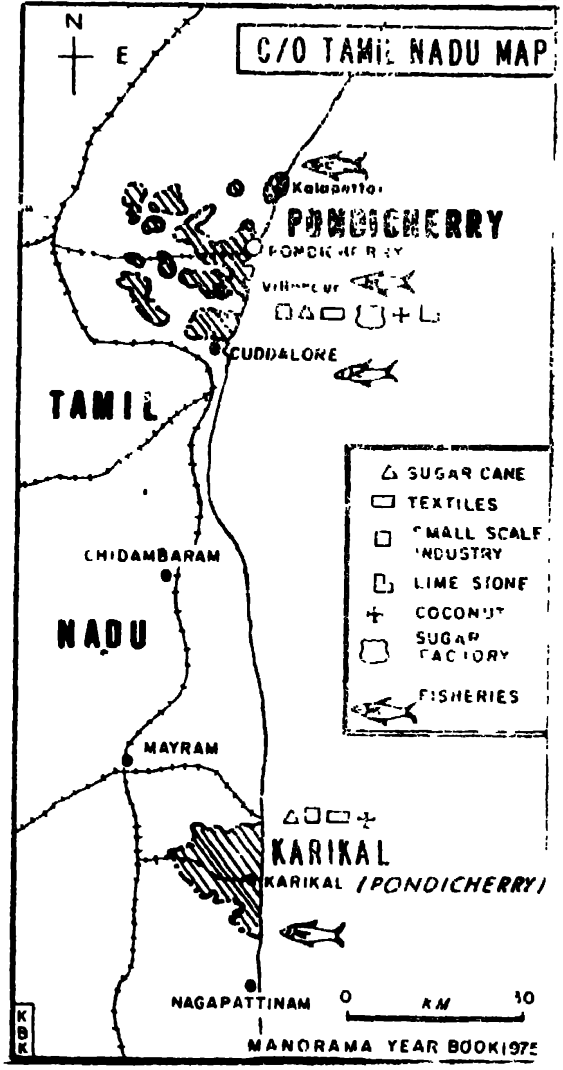
PONDICHERRY

Area:	480 sq km.
Population:	471,701
Principal Languages:	Tamil and French
Capital:	Pondicherry
Lieut. Governor:†	Cheddi Lal
Leg. Assembly Speaker:	M. L Selvaraj
*Chief Justice:**	See Tamil Nadu.

Historical Background

The Territory of Pondicherry comprises the French enclaves of Pondicherry, Karaikal, Mahe and Yanam which lie scattered in South India. Pondicherry, the capital of the Territory was once the original headquarters of the French in India. Since 1963 Pondicherry has suffered vicissitudes of fortune such as no other Territory in India has suffered. The Dutch





---

† Pondicherry came under President's rule on Jan. 3, 1974.

* Under Madras High Court.

aptured Pondicherry from the French in 693. It was restored to the French in 699. The English captured Pondicherry n 1761, restored it in 1765, retook it in 778, restored it a second time in 1785, ook it back a third time in 1793 and inally restored it to the French in 1814. he French Government transferred the e facto government of the French enlaves in India to the Government of India n Nov. 1, 1954.

Administration

Pondicherry is directly administered by he Government of India through a Lt. overnor appointed by the President of ndia.

Legislature. Pondicherry has a unicameral legislature–the Legislative Assembly–onsisting of 30 members.

The Territory is divided into four istricts of which only two, Pondicherry nd Karaikal have any mentionable size. ven this is insignificant compared to the istricts in other States and Territories. he districts of Pondicherry are in fact oastal enclaves once possessed by the rench and are geographically far removed om one another.

Table 321

istrict	*Area (sq. km.)*	*Population (1971 census)*	*Headquarters*
Karaikal	161	100042	Karaikal
Mahe	9	23134	Mahe
Pondicherry	290	340240	Pondicherry
Yanam	20	8291	Yanam

Economic Structure

The Territory of Pondicherry is made p entirely of coastal plains. As such, lmost the whole area of land is put nder cultivation. There are no forests or ountain land.

Agriculture. Nearly 45 per cent of the opulation of Pondicherry is engaged in griculture and other allied pursuits. Paddy the main food crop. Other crops grown small quantities are jowar, bajra and ize. Sugar-cane and oilseeds are the incipal cash crops.

Table 322

Classification of Area

(In hectares)

	Description	*1971-72*	*1972-73*
	Total area according to village papers	46,822	46,822
	Forests	—	—
	Land not available for cultivation	11,002	10,952
4	Other uncultivated land excluding fallows	3,146	3,202
5	Fallow land	1,253	1,853
6	Net area sown	31,421	30,815
7	Area sown more than once	23,064	21,405
8	Total cropped area	54,485	52,220

Source: Bureau of Statistics and Evaluation, Pondicherry.

Table 323

Area Under Irrigation

	Sources	*1971-72*	*1972 73*
1	Canals	11,026	11,048
2	Tanks	5,490	4,835
3	Tube wells	9,611	10,404
4	Ordinary wells	1	1
5	Other sources†	204	218
6	Total area irrigated (Net)	26,332	26,506
7	Area irrigated more than once	15,566	14,279
8	Gross area irrigated	41,898	40,785

† Spring channels, ponds, etc. are included in other sources.

Source: Bureau of Statistics and Evaluation, Pondicherry.

Table 324

Area Under Crops Irrigated

(In hectares)

	Crops	*1971-72*	*1972-73*
I	*Food Crops*		
	Paddy	32,566	31,842
	Ragi	2,373	2,603
	Other millets	409	232
	Total cereals	35,348	34,677
	Blackgram	3	—
	Other pulses	—	2
	Total pulses	3	2
	Total foodgrains	35,351	34,678
	Chillies	90	92
	Sugarcane	1,545	1,624
	Plantains	160	159
	Tapioca	474	457
	Other food crops	389	413
	Total food crops	38,009	37,424
II	*Non-Food Crops*		
	Cotton	236	790
	Groundnut	3,458	2,385
	Gingelly	97	91
	Other non-food crops	98	95
	Total non-food crops	3,889	3,361
	Grand Total	41,898	40,785

Source: Bureau of Statistics and Evaluation Pondicherry.

Table 325

Animal Husbandry

(Livestock census 1972)

Cattle	89,602
Buffaloes	12,110
Bovine	101,712
Sheep	7,056
Goats	41,731
Horses and Ponies	61
Donkeys	195
Camels, Pigs, etc,	1,891
Total Livestock	152,646
Poultry	173,043
Ducks	6,526
Other poultry	774
Total poultry	180,343

Source: *Abstract of Statistics Pondicherry 1971-72.*

Fisheries. Pondicherry and the other regions, being situated on the sea coast, the Territory has great potential for marine fishing. All varieties of marine fish are included in the catches- eels, catfish, oil sardine, other sardine, anchovies, perches, mullets, ribbon fish, pomfrets, mackerels, seer fish, tunnies, silver bellies etc.

Table 326

Estimates of Marine Fish Production

(In Quintals)

Region	*1970*	*1971*	*1972**
Pondicherry and Karaikal	106,240	104,530	96,170
Mahe	32,133	30,179	27,950
Yanam	6,596	10,737	4,620
Total	144,969	145,446	128,740

Estimates of Inland Fish Production

Pondicherry	2,090	1,908	2,190
Karaikal	807	1,120	1,270
Mahe	...	...	...
Yanam	889	908	810
Total	3,786	3,936	4,270

---

* Provisional

Source: *Abstract of Statistics, Pondicherry: 1971 72.*

Power. There are no power generation projects in the Territory. Pondicherry had 72 electrified villages in 1951. Now all the 353 villages in the Territory have been electrified. For irrigation, the Territory had installed 5,350 sets/tube wells as in March 1972.

Table 327

Power *

(*Lakhs of kWh*)

Item	*1970*	*1971*	*1972*
Electricity purchased	879.84	963.59	1012.3[illegible]
„ sold	757.97	827.87	875.25

Industry. There are no heavy industries or mining enterprises in the Territory. All industries are consumer oriented. Textiles, sugar, electrical appliances, camphor, leather goods, wooden articles and cycle parts are the main industries of the Union Territory of Pondicherry.

Table 328

Industry *

Item	*1970*	*1971*
Cotton textiles:		
Spindles installed No	121,578	121,566
Looms installed „	2,669	2,693
Production of cotton yarn '000 kg.	1,105	1,067
Production of cloth '000 Metres	4,392	5,042
Daily average number of workers employed. No.	7,642	8,240

---

* Source: *Abstract of Statistics, Pondicherry: 1971-72.*

Table 329

Literacy and Education

Pondicherry has a good percentage of literacy—46.02 per cent.

Number of Institutions

Type of institutions	*1970-71*	*1971-72*
A. General Education:		
Colleges	7	7
High Schools	46	47
Middle Schools	81	82
Primary Schools	259	267
Nursery Schools	47	49
Total A	440	452
B. Professional, Technical and Special Education:		
Medical College	1	1
School for Nursing	1	1
Teachers Training Centres	2	2
Polytechnic	1	1
Junior Technical School	1	1
School for Embroidery, Needle work and Dress making	1	1
Pre-Vocational Training Centres	4	4
School for the Blind	1	1
School for the Deaf and Dumb	1	1
Schools for Adults	52	40
Total B	65	53
Grand Total A and B	505	505

ADMINISTRATIVE PERSONNEL

President: Fakhruddin Ali Ahmed, Rashtrapathi Bhavan, New Delhi-4.

Vice President: B. D. Jatti, 6-Maulana Azad Road, New Delhi-1.

MEMBERS OF THE CABINET

(as on 31-12-1974)

Smt. Indira Gandhi: Prime Minister. Minister of Atomic Energy, Electronics & Space.

Y. B. Chavan: Finance.

Jagjivan Ram: Defence.

Sardar Swaran Singh: External Affairs.

Dev Kanta Borooah: Petroleum & Chemicals.

D. P. Dhar: Planning.

Umashankar Dikshit: Home Affairs.

H. R. Gokhale: Law, Justice and Company Affairs.

Keshav Deo Malaviya: Steel and Mines.

T. A. Pai: Heavy Industry.

K. Raghu Ramaiah: Parliamentry Affairs.

Raj Bahadur: Tourism & Civil Aviation.

K. Brahmananda Reddy: Communications.

Bhola Paswan Shastri: Works & Housing.

Dr. Karan Singh: Health & Family Planning.

C. Subramaniam: Industrial Development, Science and Technology. Will hold temporarily additional charge of the Ministry of Agriculture.

Kamalapati Tripathi: Shipping and Transport.

MINISTERS OF STATE

Prof. D. P. Chattopadhyaya: Commmerce.

Mohan Dharia: Planning.

K. R. Ganesh: Finance.

I. K. Gujari: Information & Broadcasting.

R. K. Khadilkar: Supply & Rehabili-tion.

Shah Nawaz Khan: Petroleum and hemicals.

Dr. (Smt.) Sarojini Mahishi: Law, stice and Company Affairs.

B. P. Maurya: Agriculture.

Om Mehta: Parliamentary Affairs and Works and Housing

Ram Niwas Mirdha: Home Affairs and Department of Personnel.

Prof. S. Nurul Hassan: Education, Social Welfare and Culture.

K. C. Pant: Irrigation & Power and will also assist the Prime Minister in Parliamentary work relating to the Departments of Atomic Energy, Electronics & Space.

K. V. Raghunatha Reddy: Labour.

Annasahib P. Shinde: Agriculture.

Vidya Charan Shukla: Defence Production

Prof. Sher Singh: Communications.

Surendra Pal Singh: External Affairs.

Deputy Ministers

Ziaur Rahman Ansari: Industrial Development.

Bedabrata Barua: Law, Justice and Company Affairs.

Kondajji Basappa: Health and Family Planning.

A. C. George: Commerce.

Subodh Chandra Hansda: Steel and Mines.

A. K. Kisku: Health & Family Planning.

F. H. Mohsin: Home Affairs.

Pranab Kumar Mukherjee: Shipping and Transport.

Arvind Netam: Education Social Welfare and Culture.

Jagannath Pahadia: Communications.

Janaki Ballav Patnaik: Defence.

Sukhdev Prasad: Steel and Mines.

Prof. Sidheshwar Prasad: Irrigation and Power.

Mohd. Shafi Qureshi: Railways.

Smt. Sushila Rohatgi: Finance.

B. Shankaranand: Parliamentary Affairs.

Dalbir Singh: Heavy Industry.

Dharam Bir Sinha: Information and Broadcasting.

Kedar Nath Singh: Parliamentary Affairs.

G. Venkatswamy: Supply and Rehabilitation.

Balgovind Verma. Labour.

D. P. Yadav: Education, Social Welfare and Culture.

DEFENCE SERVICES

Supreme Commander: President of India
Chief of Army Staff: Gen. G. G. Bewoor
Chief of Naval Staff: Admiral S. N. Kohli.
Chief of Air Staff: Air Chief Marshal O. P. Mehra.

SUPREME COURT OF INDIA

Chief Justice: Justice A. N. Ray
Judges: „ P. Jagan Mohan Reddy
„ D. G Palekar
„ H. R. Khanna
„ K. K. Mathew
„ M. H. Beg
„ Y. V. Chandrachud
„ A. Alagiriswamy
„ V. R. Krihna Iyer
„ P. N. Bhagwati
„ P K Goswamy
„ R. S. Sarkaria

STATE WISE LIST OF MEMBERS OF LOK SABHA

(As on 31-12-1974)

Abbreviations

Akali Dal	Ak. Dl.
All Party Hill Leaders Conference	APHLC
Anna DMK	ADMK
Bharatiya Kranti Dal	BKD
Congress	Cong
Congress (Opposition)	Cong-O
Communist Party of India	CPI
Communist Party of India (Marxist)	CPI M
Dravida Munnetra Kazhagam	DMK
Forward Bloc	FB
Forward Bloc (Marxist)	FB. Marx.
Independent	Ind.
Jana Sangh	JS
Kerala Congress	KC
Manipur People's Party	MPP
Mizo Union Party	MUP
Muslim League	ML
Peasent Workers Party	PWP
Praja Socialist Party	PSP
Republican	Rep.
Revolutionary Socialist Party	RSP
Sampurna Maharashtra Samity	SMS
Socialist Party	SP
Socialist Party (Lohiawadi)	SP (L)
Swatantra	Swa
Telengana Praja Samlti	TPS
Unattached	UA
United Democratic Front	UDF
United Indepenpent Parliamentary Group	UIPG
Scheduled Caste	SC
Scheduled Tribe	ST

OFFICERS OF THE LOK SABHA

Speaker: Dr. G. S Dhillon
Dy. Speaker: G. G. Swell
Secretary General: S. L. Shakdher

1. STATES

ANDHRA PRADESH—41

Rajagopalarao Boddepalli (Cong) C1—19, Pandara Park, New Delhi-11. .

Biddika Satyanarayana (Cong) 123, South Avenue, New Delhi-11.

K Narayana Rao (Cong) 123, South Avenue, New Delhi-11.

P. V. G. Raju (Cong) C—1/16, Pandara Park, New Delhi-11.

Smt B. Radhabai Ananda Rao (Cong) 42, North Avenue, New Delhi-1.

S. R. A. S. Appalanaidu (Cong) 13 E, Ferozeshah Road, New Delhi-1.

M. S. Sanjeevi Rao (Cong) 3, Electric Lane, New Delhi-1.

S. B. P. Pattabhi Rama Rao (Cong) 5, Balwant Rai Mehta Lane, New Delhi-1.

B S Murthy (Cong) 5, Ashoka Road, New Delhi-1.

M. T. Raju (Cong) 22, South Avenue, New Delhi-11.

K Suryanarayana (Cong) 178, North Avenue, New Delhi-1.

Maganti Ankineedu (Cong) 7, Ferozeshah Road, New Delhi-1.

Dr. K. L. Rao (Cong) 7, Lodi Estate, New Delhi-11.

Nageswararao Meduri (Cong) 164, North Avenue, New Delhi-1.

P. Ankineedu Prasadarao (Cong) 2, Pt. Pant Marg, New Delhi-1,

K Raghuramaiah (Cong) 14, Ashoka Road, New Delhi-1.

Maddi Sudarsanam (Cong) 7, Windsor Place, New Delhi-1.

P. V. Reddy (Cong) 162, North Avenue, New Delhi-1.

D. Kamakshaiah (Cong) 62, North Avenue. New Delhi-1.

T Balakrishniah (Cong) 11, North Avenue New Delhi-1.

P Narasimha Reddy (Cong) 35, North Avenue, New Delhi-1.

P. Parthasarathy (Cong) 1, Jantar-Mantar Road, New Delhi-1.

Y. Eswara Reddy (CPI) 24, Janpath New Delhi-1.

P. Bayapa Reddy (Cong) 167-169, North Avenue, New Delhi-1,

P. Antony Reddi (Cong) 213, North Avenue, New Delhi-1.
K. Kodanda Rami Reddy (Cong) 169, South Avenue, New Delhi-11.
P. Venkatasubbaiah (Cong) 25, Canning Lane. New Delhi-1.
M. Bheeshmadev (Cong) 206, North Avenue, New Delhi-1.
J. Rameshwar Rao (Cong) 27, Cannig Lane, New Delhi-1.
Dr. G. S. Melkote (Cong) 213, Vithalbhai Patel House, New Delhi-1,
M. M. Hashim (Cong) 73, North Avenue, New Delhi-1.
G. Venkatswamy (Cong) 24, Akbar Road, New Delhi-11
Mallikarjun (Cong) 12 C, Ferozeshah Road, New Delhi-1.
M. Ram Gopal Reddy (Cong) 314, Vithalbhai Patel House, New Delhi-1
P. Ganga Reddy (Cong) 214, Vithalbhai Patel House, New Delhi-1.
V. Tulsiram (Cong) 91, South Avenue, New Delhi-11.
M. Satyanaryan Rao (TPS) 52, South Avenue, New Delhi-11.
S. B. Giri (TPS) 219, North Avenue, New Delhi-1.
Smt. T. Lakshmi Kanthamma (Cong) 82, North Avenue, New Delhi-1,
K Ramkrishna Reddy (Cong) 161, South Avenue, New Delhi-11.
B. N. Reddy (CPI-M) 312, Vithalbhai Patel House, New Delhi-1.

ASSAM—14

Noorul Huda (CPI-M) 421, Vithalbhai Patel House, New Delhi-1
Nihar Laskar (Cong) 27, North Avenue New Delhi 1.
Biren Engti (Cong) 172, South Avenue, New Delhi-11.
Moinul Haque Choudhary 4, Motilal Nehru Marg, New Delhi-11.
Dharni Dhar Basumatari 54, South Avenue, New Delhi-11
F. A. Ahmed (Cong) 1, Willingdon Crescent, New Delhi-1.
Dinesh Chandra Goswami 51, South Avenue, New Delhi-11.
Dharni Dhar Das (Cong) 171, South Avenue, New Delhi-11.
Kamala Prasad (Cong) 97, North Avenue, New Delhi-1.
L. D. Kotoki (Cong) 77, North Avenue, New Delhi-1.
Bedabrata Barua (Cong) 9, Thyagaraja Marg, New Delhi-11
Tarun Gogoi (Cong) 76, North Avenue, New Delhi-1
Biswanarayan Shastri (Cong) 65, North Avenue, New Delhi-1.
Robin Kakoti (Cong) 61, North Avenue, New Delhi-1

BIHAR—53*

Bhola Raut (Cong) 11, Meena Bagh, New Delhi-11.
Bibhuti Mishra (Cong) 20, Gurdwara Rakabganj Road, New Delhi-1.
Pandit D. N. Tiwary (Cong) 7, Raisina Road, New Delhi-1.
Mohammad Yusuf (Cong) 24, Rakabganj Road, New Delhi-1.
Ramshekhar Prasad Singh (Cong) 9, Windsor Place, New Delhi-1.
Ram Deo Singh (SP) 30-A, Atul Grove Road, New Delhi-1.
K. M. "Madhukar" (C P I) 16, North Avenue, New Delhi-1.
Digvijaya Narain Singh (Cong—O) 12, Dr. Rajendra Prasad Road, New Delhi-1.
Nawal Kishore Sinha (Cong) 18, Dr. Rajendra Prasad Road, New Delhi-1.
N. P. Yadav (Cong) 6, Windsor Place, New Delhi-1.
Hari Kishore Singh (Cong) 41, Meena Bagh, New Delhi-11.
Bhogendra Jha (CPI) 10, Windsor Place, New Delhi-1.
Jagannath Mishra (Cong) 32, North Avenue, New Delhi-1.
Yamuna Prasad Mandal (Cong) 14 D Ferozeshah Road, New Delhi-1.
Ram Bhagat Paswan (Cong) 105, South Avenue, New Delhi-11,
Chiranjib Jha (Cong) 199, North Avenue, New Delhi-1.
R. P. Yadav (Cong) 20, North Avenue, New Delhi-1.
Tulmohan Ram (Cong) 34, Gurdwara Rakabganj Rd. New Delhi-1.
Md. Jamilurrahman (Cong) 14, North Avenue, New Delhi-1.
Mohammad Tahir (Cong) 142, North Avenue. New Delhi.1.
G. P. Yadav (JS) 201, Vithalbhai Patel House, New Delhi-1.
Yogesh Ch. Murmu (Cong) 174, South Avenue, New Delhi-11
Jagdish Narain Mandal (Cong) 156, North Avenue, New Delhi-1.
S. C. Besra (Cong) 6, Dr. Bishamber Das Road, New Delhi-1.
Madhu Limaye (SP) 12, Gurudwara Rakabganj Road, New Delhi-1.
Bhagwat Jha Azad (Cong) 7, Ashoka Road, New Delhi-1.
D. P. Yadav (Cong) 6, Tughlak Road, New Delhi-11.
Bhola Manjhi (CPI) 43, North Avenue, New Delhi-1.
Shiv Shanker Prasad Yadav (UA) 4, South Avenue, New Delhi-11,
Shyamnandan Mishra (Cong—O) 24, Dr. Rajendra Pd. Road, New Delhi-1.

---

* One seat vacant.

Siddheshwar Prasad (Cong) 10, Akbar Road, New Delhi-11
Dharam Bir Sinha (Cong) 17, Akbar Road, New Delhi-11.
Ramavatar Shastri (CPI) 208, North Avenue, New Delhi-1.
B. R. Bhagat (Cong) 10, Raisina Road, New Delhi-1.
Anant Prasad Sharma (Cong) 98, Shahjahan Road, New Delhi-11.
Sheo Pujan Shastri (Cong) 201, South Avenue, New Delhi-11.
Jagjivan Ram (Cong) 6, Hastings Road, New Delhi-11.
Satyendra Narayan Sinha (Cong—O) 28, Akbar Road, New Delhi-11.
Chandra Shekhar Singh (CPI) 60, North Avenue, New Delhi-1.
Sukhdeo Prasad Verma (Cong) 110, North Avenue, New Delhi-1.
Ishwar Chaudhry (JS) 28, Meena Bagh, New Delhi-11.
Shankar Dayal Singh (Cong) 43, Meena Bagh, New Delhi-11.
Chapalendu Bhattacharyyia (Cong) 89, North Avenue, New Delhi-1.
R. N. Sharma (Cong) 139, North Avenue, New Delhi-1.
Damodar Pandey (Cong) 38, South Avenue, New Delhi-11.
P. K Ghosh (Cong) 28, Gurdware Rakabganj Road, New Delhi-1.
Sardar Swaron Singh Sokhi (Cong) 6, Meena Bagh, New Delhi-11.
M. S. Purty (UIPG) 126, South Avenue, New Delhi-11.
N. E Horo (UIPG) 176, South Avenue, New Delhi-11.
Kartik Oraon (Cong) 15, Canning Lane, New Delhi-11.
Kunmari Kamala Kumari (Cong) 118, North Avenue, New Delhi-1.

GUJARAT—24

Dr. Mahipatray Mehta (Cong) 69, South Avenue, New Delhi-11.
Rasiklal Parikh (Cong) 3, Ferozeshah Road, New Delhi-1.
Aravind M. Patel (Cong) 188, South Avenue, New Delhi-11.
D. P. Jadeja (Cong) 101-103, South Avenue, New Delhi-11.
N. R Vekaria (Cong) 169, South Avenue, New Delhi-11,
Dr. Jivraj Mehta (Cong) 73, Bharti Nagar, New Delhi-3
Prasannbhai Mehta (Cong—O) 184, North Avenue, New Delhi-1.
H. M. Patel (Swa) D-11/251, Vinay Marg, New Delhi-11.
P. G. Mavalankar (UA) 50, Western Court, New Delhi-1.
Somchand Solanki (Cong—O) 116, North Avenue, New Delhi-1.
Natwarlal Patel (Cong) 145, North Avenue, New Delhi-1-
Khemchandbhai Chavda (Cong—O). 2, Ferozeshah Road, New Delhi-1
Popatlal M, Joshi (Cong) 26, South Avenue, New Delhi-11.
Kumari Maniben Vallabhbhai Patel (Cong—O) 405, Vithalbhai Patel House, New Delhi-1.
Bhaljibhai Ravjibhai Parmar (Cong—O) 83, North Avenue, New Delhi-1.
Piloo Mody (Swa) 2, Lodi Estate, New Delhi-3.
D. D. Deasi (Cong) 22, Janpath, New Delhi-1.
Pravinsinh Solanki (Cong—O) 17, Canning Lane, New Delhi-1.
Fatesinghrao Gaekwad (UA) 7, Dupleix Lane, New Delhi-11.
Prabhudas Patel (Cong) 20, South Avenue, New Delhi-11.
Morarji R. Desai (Cong-O) 5, Dupleix Road, New Delhi 11.
Amarsinh Chaudhari (Cong) 17, North Avenue, New Delhi-1.
Nanubhai N Patel (Cong—O) 176, North Avenue, New Delhi-1.

HARYANA—9

Ch. Ram Prakash (Cong) 14 B, Ferozeshah Road, New Delhi-1.
M. R. Sharma (Cong) 71, North Avenue, New Delhi-1.
G L Nanda (Cong) 5, Tughlak Road, New Delhi-11.
Mukhtiar Singh Malik (JS) 64, South Avenue, New Delhi-11.
Sher Singh (Cong) 3, Hastings Road, New Delhi-11.
Tayyab Hussain (Cong) 11, Mahadev, Road, New Delhi-1
Birender Singh Rao (UA) 3/AB Purana Quilla Road, New Delhi-3.
Mani Ram Godara (Cong) 12 D, Ferozeshah Road, New Delhi-1.
Dalbir Singh (Cong) 7, Tughlak Road, New Delhil-1.

HIMACHAL PRADESH—4

Partap Singh (Cong) 39, North Avenue, New Delhi-1.
Virbhadra Singh (Cong) 23, Feroze Shah Road, New Delhi-1.
Vikram Mahajan (Cong) 47, Friends Colony. New Delhi-14.
Narain Chand Parashar (Cong) 21, North Avenue, New Delhi 1.

JAMMU & KASHMIR—6

Syed Ahmed Aga (Cong) C-1/12, Pandara Park, New Delhi-1.
S. A. Shamim (UA) 27, Mahadev Road, New Delhi-1.
Mohd. Shafi Qureshi (Cong) 13, Ashoka Road, New Delhi-1
Kushok Bakula (Cong) 26, Janpath, New Delhi-1
Dr. Karan Singh (Cong) 3, Nyaya Marg Chanakyapuri, New Delhi-21.
Inder J. Malhotra (Cong) 9, Meena Bagh New Delhi-11.

KARNATAKA—27

Shankar Dev (Cong) 56, North Avenue, New Delhi-1
S. R. Reddy (Cong) 29, Western Court, New Delhi-1.
Pampan Gowda (Cong) 175, South Avenue New Delhi-11.
Sidrameshwar Swamy (Cong) 76, South Avenue, New Delhi-11.
Dr. V. K. R. Varadaraja Rao (Cong) 8, Lodi Estate, New Delhi-3.
Kondaiji Bassappa (Cong) 90, Shahjahan Road, New Delhi-11.
K. Lakkappa (Cong) 156, South Avenue, New Delhi-11.
K. Malianna (Cong) 45, South Avenue, New Delhi-11.
G. Y. Krishnan (Cong) 128, North Avenue, New Delhi-1.
M V. Krishnappa (Cong) 15, Windsor Place, New Delhi-1.
K. Hanumanthaiya (Cong) 12, Teen Murti Marg, New Delhi-11.
C. K. Jaffer Sharief (Cong) 86, North Avenue, New Delhi-1.
K Chikkalingiah (Cong) 34, Western Court, New Delhi-1.
S. M. Siddayya (Cong) 46, North Avenue, New Delhi-1.
Tulsidas Dasappa (Cong) 215, North Avenue, New Delhi-1,
K. K. Shetty (Cong) 11, Windsor Place, New Delhi-1.
P. Ranganath Shenoy (Cong) 145, South Avenue, New Delhi-11.
Nuggehalli Shivappa (Cong) 189, South Avenue, New Delhi-11,
D. B. Chandre Gowda (Cong) 152, South Avenue, New Delhi-11.
T. V. Chandrashekharappa Veerabasappa (Cong) 24, South Avenue, New Delhi-11.
Balakrishna Venkanna Naik (Cong) 32, Western Court, New Delhi-1.
F. H. Mohsin (Cong) 6, Janpath, New Delhi-1.
Dr. Sarojini Mahishi (Cong) 3, Safdarjang Road. New Delhi-11.
A. K. Kotrashetti (Cong) 179, North Avenue, New Delhi-1.
B. Shankaranand (Cong) 10, Hastings Road, New Delhi-11.
S. B. Patil (Cong) 84, North Avenne, New Delhi-1.
B F. Choudhari (Cong) 67, South Avenue, New Delhi-11

KERALA—19*

Ramachandran Kadannappalli (Cong) 140, North Avenue, New Delhi-1.
C. K. Chandrappan (CPI) 87, South Avenue, New Delhi-11.
K. P. Unnikrishnan (Cong) C 11/30, Tilak Marg, New Delhi-1.
Ebrahim Sulaiman Sait (ML) 30, Western Court, New Delhi-1.
C. H. Mohamed Koya (ML) 12, Western Court, New Delhi-1.
M. K. Krishnan (CPI M) 185, South Avenue, New Delhi-11.
A. K. Gopalan, (CPI M) 4, Ashoka Road New Delhi-1.
C. Janardhanan (CPI) 85, South Avenue, New Delhi 11.
A C. George (Cong) 34, Prithvi Raj Road, New Delhi-11.
Dr. Henry Austin (Cong) 64, Lodhi Estate. New Delhi-3.
C M Stephen (Cong) 17. Janpath, New Delhi-1.
M M Joseph (KC) 6, South Avenue, New Delhi-11.
Varkey George (KC) 10, South Avenue, New Delhi-11.
K. Balakrishnan (RSP) 68, South Avenue, New Delhi-11.
R. Balakrishna Pillai (KC) 95, Shajaha Road, New Delhi 11.
Smt. Bhargavi Thankappan (CPI) 86, South Avenue, New Delhi-11.
N. Sreekantan Nair (RSP) 17, Windsor Place, New Delhi-1.
Vayalar Ravi (Cong) 144, North Avenue, New Delhi-1.

MADHYA PRADESH—37

Hukam Chand Kachwai (JS) 19. Windsor Place, New Delhi-1.
Smt. V.R. Scindia (JS) 37, Rajpur Road, New Delhi-6
Atal Bihari Vajpayee (JS) 1, Ferozeshah Road, New Delhi-1.
Madhavrao Scindia (JS) 37, Rajpur Road, Delhi-1.
Nathu Ram Ahirwar (Cong) 192, North Avenue, New Delhi-1.
Narendra Singh (JS) 79, South Avenue, New Delhi-11.
Martand Singh (UIPG) 82, South Avenue New Delhi-1.
Dhani Shah Pradhan (UIPG) 112, South Avenue, New Delhi 11.

---

* One Seat Vacant.

coffee
for
enjoyment
COFFEE BOARD, Bangalore

Rana Bahadur Singh (UIPG) 84, South Avenue, New Delhi-11.
Babunath Singh (cong) 25, North Avenue, New Delhi-1.
Umed Singh Rathia 15, North Avenue, New Delhi-1.
Bhagatram Rajaram Manhar (Cong) 209, North Avenue, New Delhi-1.
R. G. Tiwari (Cong) 33, Canning Lane, New Delhi-1.
Shrikrishna Agrawal (Cong) C-II/47, Tilak Marg, New Delhi-11.
Vidya Charan Shukla (Cong) 7, Race Course Road, New Delhi-11.
Arvind Netam (Cong) 18, Ashoka Road, New Delhi-1.
Lambodar Baliyar (Cong) 111, South Avenue, New Delhi-11.
Chandulal Chandrakar (Cong) 58-A, Ashoka Road, New Delhi-1.
Ramsahai Pandey (Cong) 14, Talkatora Road, New Delhi.1.
C. D Gautam (Cong) 105, North Avenue, New Delhi-1.
M. G. Uikey (Cong 127, North Avenue, New Delhi-1.
V. Shanker Giri (Cong) Rashtrapati Bhavan, New Delhi.11.
Smt. Sahodrabai Rai (Cong) 148, North Avenue, New Delhi-1.
G. S. Mishra (Cong) 6, Gurdwara Rakabganj Road, New Delhi-1
N K. P. Salve (Cong) 4, Dupleix Lane, New Delhi-11.
Chaudhary Nitiraj Singh (Cong) 11, Race Course Road, New Delhi-11-
Dr. Shankar Dayal Sharma (Cong) 2, Jantar Mantar Road, New Delhi-1.
R. N. Goenka (UIPG) C/o The Indian Express Building, Bahadurshah Zafar Marg, New Delhi-1.
Jagannathrao Joshi (JS) 30, Dr. R. P Road, New Delhi-1.
Phool Chand Verma (JS) 146, South Avenue, New Delhi-11.
Ram Singh Bhai (Cong) 514, Vithalbhai Patel House, New Delhi-1.
B. S. Chowhan (JS) 188, Rouse Avenue, New Delhi-1.
G. C. Dixit (Cong) 161, North Avenue, New Delhi-1,
R. V. Bade (JS) 56, South Avenue, New Delhi-11.
Bhagirath Bhanwar (SP) 214. North Avenue, New Delhi-1
Dr. Laxminarayan Pandeya (JS) 154, South Avenue, New Delhi-11.

MAHARASHTRA - 45

Madhu Dandavate (SP) 507, Vithalbhai Patel House, New Delhi-1.
S. L. Peje (Cong) 64, North Avenue, New Delhi-1.
Shankarrao Savant (Cong) 200, North Avenue, New Delhi-1.
Dr. Kailas (Cong) 9, Mahadev Road. New Delhi-1.
S. A. Kader (Cong) 18, Ferozeshah Road, New Delhi-1.
Smt. Roza Vidyadhar Deshpandey (C P I) 45, Western Court, New Delhi-1.
H. R. Gokhale (Cong) 12, Janpath, New Delhi-1
Raja Kulkarni (Cong) 19 Janapath, New Delhi-1.
Bhaoo Sahib Dhamankar (Cong) 113, Vithalbhai Patel House, New Delhi-1.
Laxman Kakadya Dumada (Cong) 121, Vithalbhai Patel house, New Delhi-1.
B. R. Kavade (Cong) 171, North Avenue, New Delhi-1.
Z. M. Kahandole (Cong) 174, North Avenue, New Delhi-1.
T. H. Gavit (Cong) 33, South Avenue, New Delhi-11.
C. A. Patil (Cong) 1, South Avenue, New Delhi-11.
Krishnarao Patil (Cong) 4, North Avenue, New Delhi-1.
Y. S. Mahajan (Cong) 175, North Avenue, New Delhi-1.
Arjun Shripat Kasture (Cong) 92, North Avenue, New Delhi-1.
Vasant Sathe (Cong) 101-B, Vithalbhai Patel House, New Delhi-1.
K. G. Deshmukh (Cong) 146, North Avenue, New Delhi-1
Ram Hedaoo (UA) 204, North Avenue, New Delhi-1.
Jambuwant Dhote (FB) 18, Gurdwara Rakabganj Road, New Delhi-1.
J. P. Dubey (Cong) 51 & 53, North Avenue, New Delhi-1.
Krishnarao Thakur (Cong) 187, South Avenue, New Delhi-11.
A. Shafee (Cong) 107, South Avenue, New Delhi-11.
J. G. Kadam (Cong) 45, North Avenue, New Delhi-1.
S. B. Thakre (Cong) 30, North Avenue, New Delhi-1.
Tarodekar Venkatrao Babarao (Cong) 225, North Avenue, New Delhi-1.
Tulsiram Dashrath Kamble (Cong.) 117, South Avenue, New Delhi-11.
Shivajirao S. Deshmukh 152, (Cong) North Avenue, New Delhi-1.
Baburao Jangluji Kale (Cong.) 148, South Avenue, New Delhi-11.
Manikrao Palodkar (Cong.) 150, South Avenue, New Delhi-11.
S. T. Pandit (Cong.) 157, South Avenue, New Delhi-11.
T. A. Patil (Cong.) 128, South Avenue, New Delhi-11.
S. R. Damani (Cong.) 13, Janpath, New Delhi 1.

THE KERALA MINERALS AND METALS LIMITED

(A Government of Kerala Undertaking)

PIONEERS IN QUALITY MINERALS

Producers of:

- * ILMENITE
- * LEUCOXENE
- * MONAZITE
- * RUTILE
- * ZIRCON
- * SILLIMANITE

Registered Office
M. C. No. C-28-229,
Manayilkulangara,
P. B. No. 30
QUILON-691012.

Factory
KOILTHOTTAM
CHAVARA.

Telephones
Office: Quilon 2283
Residence: Quilon 2082
Factory: Chavara 26 & 71

Telex
088-228 (MINMET)

Telegram
"TITANIUM" QUILON/CHAVARA

ORIENT PAPER MILLS LIMITED

Manufacturers of Quality Printing-Writing, Packing-Wrapping Papers and Paper Boards. Also manufacture Superior quality 'ORMO' Brank Ammonia papers and Polythene Coated Papers and Boards.

Mills: BRAJRAJNAGAR (ORISSA) : AMLAI (M. P.)

N. S. Kamble (UA) 94, North Avenue, New Delhi-1.
Annasaheb P. Shinde (Cong.) 1, Motilal Nehru Marg, New Delhi-11.
E. V. Vikhe Patil (Cong.) 59, South Avenue, New Delhi-11.
Anantrao Patil (Cong) 8, North Avenue, New Delhi-1.
Mohan Dharia (Cong.) 4, Hastings Road, New Delhi-11.
R. K. Khadilkar (Cong.) 1, Tughlak Road, New Delhi-11.
Y. B. Chavan (Cong.) 1, Race Course Road, New Delhi-11.
Smt. Premalabai Daiisaheb Chavan (Cong) C-11/47, Shahjahan Road, New Delhi-11.
Annasaheb Gotkhinde (Cong) 14, Meena Bagh, New Delhi-11.
Dattajirao Kadam (Cong.) 19, Meena Bagh New Delhi 11.
Rajaram Dadasaheb Nimbalkar (Cong) 7, Meena Bagh, New Delhi-11

MANIPUR—2

N. Tombi Singh Cong) 108, South Avenue, New Delhi-11
Paokai Haokip (Cong.) 65, South Avenue, New Delhi-11.

MEGHALAYA—2

G. G. Swell U.A.) 32, Aurangzeb Road, New Delhi-11.
K. Mark (U.A.) 149, North Avenue, New Delhi-1

NAGALAND—1

A. Kevichusa (UIPG) 207, North Avenue, New Delhi 1.

ORISSA—20

C. M. Sinha (UIPG) 36, Meena Bagh, New Delhi-11.
Shyam Sunder Mohapatra (Cong) 29, Canning Lane, New Delhi-1.
Arjun Sethi (Cong.) 7, South Avenue, New Delhi-11.
Anadi Charan Das (Cong) 202 Vithalbhai Patel House, New Delhi-1.
Surendra Mohanty (UIPG) 124, South Avenue, New Delhi-11.
Janaki Ballav Patnaik (Cong) 8. Teen Murti Marg, New Delhi-11.
Banamali Patnaik (Cong.) 42, Canning Lane, New Delhi-1
Chintamani Panigrahi (Cong 109, North Avenue, New Delhi-1.
D. K. Panda (CPI) 83, South Avenue, New Delhi-11.
Jagannath Rao (Cong 3, Moti Lal Nehru Place, New Delhi-11.
Giridhar Gomango (Cong) 108, Vithalbhai Patel House, New Delhi-1.
K. Pradhani (Cong) 125, South Avenue, New Delhi-11.
P. K. Deo (SWA) 4, South Avenue Lane, New Delhi-11.
Baksi Nayak (SWA) 180, South Avanue, New Delhi-11.
R. R. Singh Deo (SWA) 29, North Avenue, New Delhi-1.
Banamali Babu (Cong) 48, South Avenue, New Delhi-11.
Gajadhar Majhi (Cong) 23, South Avenue, New Delhi-11.
Kumar Majhi (Cong) 28, South Avenue, New Delhi-11.
Devendra Satpathy (Cong) 60. Lodi Estate, New Delhi-3.
P, Gangadeb (Cong.) 164, South Avenue, New Delhi-11.

PUNJAB—13

Gurdas Singh Badal (UA) 24, Meena Bagh, New Delhi-11.
Sardar Mohinder Singh Gill (Cong.) 60, Ashoka Road, New Delhi-1
Dr. G S. Dhillon (Speaker) 20, Akbar Road, New Delhi-11.
Ragunandan Lal Bhatia (Cong) 28, Janpath, New Delhi-1.
Prabodh Chandra (Cong) 18. Janpath New Delhi-1-
Darbara Singh (Cong) 5. Safdar Jan Lane, New Delhi-11.
Sardar Swaran Singh (Cong) 7, Hastings Road, New Delhi-11
Ch. Sadhu Ram (Cong.) 22, Dr. R. P Road, New Delhi-1.
Devinder Singh Garcha (Cong) 9, Canning lane, New Delhi-1.
Sardar Buta Singh (Cong) 19 Ferozeshah Road, New Delhi-1.
Sat Pal Kapur (Cong) 180 North Avenue, New Delhi-1.
B. S. Bhaura (CPI) 89, South Avenue, New Delhi-11.

RAJASTHAN—23

Panna Lal Barupal (Cong.) 96, North Avenue, New Delhi-1.
Dr. Karni Singh (UIPG) 1/19, Rao Tularam Marg Shantiniketan, New Delhi-22,
S. N. Singh (Cong) 18, South Avenue, New Delhi-11.
Shrikishan Modi (Cong) 60, South Avenue, New Delhi-11.
Smt. Gayatri Devi (SWA) 33, Aurangzeb Road, New Delhi-11.
Nawal Kishore Sharma (Cong) 226, North Avenue, New Delhi-1.
Dr. H. P. Sharma (Cong) C-1/35, Pandara Park, New Delhi-11.

ATTENTION : DISTRIBUTION ENGINEERS

If you are looking for a clean and easy-to-joint cable, the answer is:

ALIND SOLIDAL

The solid conductors make soldering and compression joints far, far easier and trouble-free

CLEAN AND COMPACT
EASY TO LAY
EASY TO INSTALL

Fully annealed solid aluminium conductor PVC insulated & sheathed LT (660/1100 V) underground cable with aluminium armouring -conforming to Indian Standards Spec IS 4288

ALIND

THE ALUMINIUM INDUSTRIES LTD
Kundara (Kerala)
Enquiries to: 'MECO' House,
11A 1 Mount Road, Madras-600002

easterns AL 53

Raj Bahadur (Cong) 19, Akbar Road, New Delhi-11.
Jagannath Pahadia (Cong) 8, Pandit Pant Marg, New Delhi-1.
Chhutten Lal (Cong) 16-A, Ferozeshah Road, New Delhi-1.
Bashweshwar Nath Bhargava (Cong) 100, North Avenue, New Delhi-1.
Ramkanwar (SWA) 32, Meena Bagh, New Delhi-11.
Onkar Lal Berwa (JS) 190, South Avenue, New Delhi-11.
Brijraj Singh (Cong) 3, Canning Lane, New Delhi-1.
Hiralal Doda (Cong) 54, North Avenue, New Delhi-1.
Lalji Bhai (JS) 36, South Avenue, New Delhi-11.
Bishwanath Jhunjhunwala (UA) B/60, South Extension, Pt. II, New Delhi-49.
Hemendra Singh Banera (JS) 184, South Avenue, New Delhi-11.
M. C. Daga (Cong) 10, Meena Bagh, New Delhi-11.
N. K. Sanghi (Cong) 7, Humayun Road, New Delhi-3.
Amrit Nahata (Cong) 127-129, South Avenue, New Delhi-11.
Smt. Krishna Kumari (UIPG) 2. Teen Murti Lane, New Delhi-11,
Nathuram Mirdha (Cong) 40, Canning Lane, New Delhi-1.

TAMIL NADU—39

Krishnan Manoharan (ADMK) 10, Dr. Bishamber Das Road, New Delhi-1.
Murasoli Maran (DMK) Tamil Nadu House, Kautalya Marg, Chanakiyapuri, New Delhi-11.
T. S. Lakshmanan (DMK) 49, North Avenue, New Delhi-1.
C. Chittibabu (DMK) 28, North Avenue, New Delhi-1.
O. V. Alagesan (Cong) 3, Sonehari Bagh Road, New Delhi-11.
R. P. Ulaganambi (DMK) 85, North Avenue, New Delhi-1.
C. K. Chinnaraji (DMK) 177, North Avenue, New Delhi-1.
G. Viswanathan (DMK) 9, Dr. Bishamber Das Rd., New Delhi-1.
M. R. Lakshminarayanan (Cong) 136, South Avenue, New Delhi-11.
S. Radhakrishnan (Cong) 93, North Avenue, New Delhi-1.
V. Mayavan (DMK) 55—57, North Avenue, New Delhi-1.
M. Deiveekan (DMK) 26, Gurdwara Rakabganj Road, New Delhi-1.
C. Subramaniam (Cong) 5, Sonehri Bagh Road, New Delhi-11.
E. R. Krishnan (DMK) 205, North Avenue, New Delhi-1.
G. Bhuvarahan (Cong) 15, Ferozeshah Road, New Delhi-1.
M. Muthuswamy (ADMK) 189, North Avenue, New Delhi-1.
J. Matha Gowder (DMK) 119, North Avenue, New Delhi-11.
Smt. Parvathi Krishnan (CPI) 68, North Avenue, New Delhi-1.
Mohan Raj (DMK) 151, South Avenue, New Delhi-11.
C. T. Dhandapani (DMK) 67, North Avenue, New Delhi-1.
P. A Saminathan (DMK) 44, North Avenue, New Delhi-1,
Muhammed Sheriff (ML) 7, Western Court, New Delhi-1.
K. Mayathevar (ADMK) 195, North Avenue, New Delhi-1.
R. V. Swaminathan (Cong) 13, Ferozeshah Road, New Delhi-1.
K. Gopal (Cong) 137, South Avenue, New Delhi-11.
M. Kalyanasundaram (CPI) 119, Vithabhai Patel House, New Delhi-1
A Durairasu (DMK) 107, North Avenue, New Delhi-1
K Veeriah (DMK) 95, North Avenue, New Delhi-1.
Era Sezhiyan (DMK) 12, Dr. Bishamber Das Road, New Delhi-1.
K. Subravelu (DMK) 130, North Avenue, New Delhi 1.
M. Kathamuthu (CPI) 322, Vithalbhai Patel House, New Delhi 1.
S. D. Somasundaram (ADMK) 80, North Avenne, New Delhi-1.
Tha Kiruttinan (DMK) 69, North Avenue, New Delhi-1.
P. K. M. Thevar (FB) 202, North Avenue, New Delhi-1.
Smt. V. Jeyalakashmi (Cong) 185, North Avenue, New Delhi-1
S. A. Muruganantham (CPI) 307, Vithalbhai Patel House, New Delhi 1.
A. M. Chellachami (Cong.) 165, North Avenue, New Delhi-1.
M. S. Sivasamy (DMK) 91, North Avenue, New Delhi-1.
K. Kamaraj [Cong. (O)] 15, Ashoka Road, New Delhi-1.

TRIPURA—2

Biren Dutta (CPI-M) 316, Vithalbhai Patel House, New Delhi-1.
D. Deb (CPI-M) 321, Vithatbhai Patel House, New Delhi-1.

UTTAR PRADESH—85

Paripoornanand Painuli (Cong.) 15-17, South Avenue, New Delhi-11.
Pratap Singh Negi (Cong) 159, North Avenue, New Delhi-1.

STATE BANK OF TRAVANCORE

(Subsidiary of the State Bank of India)

HEAD OFFICE: TRIVANDRUM

For all your Banking facilities please avail the services of

the "STATE BANK OF TRAVANCORE".

As part of the STATE BANK GROUP OF BANKS
We are fully represented not only in the whole Country but throughout the World.

With Branches in the States of ANDHRA PRADESH, KERALA, MAHARASHTRA, KARNATAKA, TAMIL NADU & WEST BENGAL.

Our MAIN BRANCHES in the STATE CAPITALS are at

HYDERABAD Zal Manzil, 4-1 824, Jawharlal Nehru Road, HYDERABAD-1
TRIVANDRUM - M. G. Road, TRIVANDRUM - 1
BOMBAY - 125 M. G. Road, Fort, BOMBAY - 1
BANGALORE - Albert Victor Road, BANGALORE - 18
MADRAS - Esplanade, MADRAS - 1
CALCUTTA - 36 Jawharlal Nehru Road, (Chowringhee) CALCUTTA - 16

WHILE AT GURUVAYUR

Please Stay at:

LIBRA TOURIST HOME,

Air Conditioned & Non-
Air Conditioned Rooms.
All Rooms Bath attached.

Gram: LIBRA **LIBRA** **Phone: 266 & 282**

TOURIST HOME
WEST NADA
GURUVAYUR

N. B. Telephones in all Rooms.

Narendra Singh Bisht (Cong) 14, Janpath, New Delhi-1.
Krishna Chandra Pant (Cong) 1, Teen Murti Marg, New Delhi-1.
Ram Dayal (Cong) 186, South Avenue, New Delhi 11.
Maulana Ishaque Sambhali (CPI) 160, North Avenue, New Delhi-1.
Virendra Agarwala (JS) 39, Meena Bagh, New Delhi-11.
Zulfiquar Ali Khan (Cong) 19 B. Friends Colony, New Delhi-14.
Karan Singh Yadav (Cong.) 77 South Avenue, New Delhi 11.
Smt. Savitri Shyam (Cong) 198, North Avenue, New Delhi-1.
Satish Chandra (Cong.) AB/5, Purana Quila Road, New Delhi-1.
Mohan Swarup (Cong) 227, North Avenue, New Delhi-1.
Jitendra Prasad (Cong.) C-1/20 Pandara Park, New Delhi-11.
Balgovind Verma (Cong, 27, Safdarjang Road, New Delhi-11.
Dharamgaj Singh (Cong, 13 South Avenue New Delhi-11.
Jagdish Chandra Dixit (Cong.) 25, Feroze Shah Road, New Delhi-1
Dr. Sankta Prasad (Cong. 31, North Avenue New Delhi-1.
Kinder Lal (Cong) 195, North Avenue, New Delhi-1
Smt. Sheila Kaul (Cong) 17, Ferozeshah Road, New Delhi-1.
Smt. Ganga Devi (Cong, 7, Canning Lane, New Delhi 1.
Ziaur Rehman Ansari (Con) 2, Janapath, New Delhi-1.
Smt. Indira Gandhi (Cong) 1, Safdarjang Road, New Delhi-11
Dinesh Singh (Cong) 1, Thyagaraja Marg, New Delhi-11.
Vidya Dhar Bajpai (Cong) 1, North Avenue, New Delhi-1.
Kedar Nath Singh (Cong) 16, Ashoka Road, New Delhi-1.
Ramji Ram (Cong) 26, North Avenue, New Delhi-1.
R. K. Sinha (Cong) AB/14, Pandara Rd, New Delhi-11.
B. N. Kureel (Cong) 7, Thyagaraja Marg, New Delhi-11.
Rudra Pratap Singh (Cong) 118, South Avenue, New Delhi-11.
Smt. Shakuntala Nayar (JS) 2, South Avenue Lane, New Delhi-11.
B. R. Shukla (Cong) 106, North Avenue, New Delhi-1.
Chandra Bhal Mani Tewari (Cong) 190, North Avenue, New Delhi-1.
Anand Singh (Cong) 47 & 49. South Avenue, New Delhi-11.
Anant Prasad Dhusia (Cong) 73, South Avenue, New Delhi-11.
K. D. Malaviya (Cong) 8, Hastings Road, New Delhi-11.
Krishna Chandra Pandey (Cong) 7-9, North Avenue, New Delhi-1.
Ram Surat Prasad (Cong) 23, Meena Bagh, New Delhi-11
Narsingh Narain Pandey (Cong) 188, North Avenue, New Delhi-1
Shibban Lal Saksena (UA) 14 E, Ferozeshah Road, New Delhi-1
Genda Singh (Cong) 123 125, North Avenue, New Delhi-1.
Bishwanath Roy (Cong) 179, South Avenue, New Delhi-11.
Tarkeshwar Pandey (Cong) 19, Electric Lane, New Delhi-1
Chandrika Prasad (Cong) 165, South Avenue, New Delhi-11
Jharkhande Rai (CPI) 50, North Avenue, New Delhi 1.
Chandrajit Yadav (Cong 14, Dr. Rajendra Prasad Road, New Delhi-1.
Ram Dham (Cong) 203, South Avenue, New Delhi-11.
Nageshwar Dwivedi (Cong) 72, North Avenue, New Delhi-1.
Rajdeo Singh (Cong) 126, North Avenue, New Delhi-1
Shambhu Nath (Cong) 143, North Avenue, New Delhi-1.
Sarjoo Pandey (CPI) 201, North Avenue, New Delhi-1.
Sudhakar Pandey (Cong 42, Ashoka Road, New Delhi-1.
Rajaram Shastri (Cong) 10, Teen Murti Lane, New Delhi-11.
Ram Swarup (Cong) 2, Gurdwara Rakabganj Road, New Delhi-1
Aziz Imam (Cong) 20, Windsor Place New Delhi-1.
Vishwanath Pratap Singh (Cong) 114, Vithal Bhai Patel House, New Delhi-1.
Jeneshwar Misra (BKD) 204, South Avenue, New Delhi-11.
Chhotey Lal (Cong) 80, South Avenue, New Delhi-11.
Sant Bux Singh (Cong) 82, Shahjahan Road, New Delhi-11
R. R Sharma (JS) 9, Pt. Pant Marg New Delhi-1.
Swami Brahmanand (Cong) 13, North Avenue, New Delhi-1.
Dr. Govind Das Richhariya (Cong) 139. South Avenue, New Delhi-11
Choudhury Ram Sewak (Cong) 4, Jantar Mantar Road, New Delhi 1.
Tula Ram (Cong) 197, North Avenue, New Delhi-1.
Smt. Sushila Rohtagi (Cong) 23, Safdarjang Road, New Delhi-11
S. M. Banerjee (CPI) 113, North Avenue, New Delhi-1.
S. S. Tewari (Cong 21, Canning Lane, New Delhi-1.

India's Seafood Exports touched a new peak in 1973-74- earning foreign exchange worth Rs. 900 million —an increase of about 50% over 1972-73—besides taking care of a huge domestic demand.

The Marine Products Export Development Authority (MPEDA) can help you launch into this exciting and expanding field. We are servicing Government agency engaged in the promotion and regulation of the fishing industry and the seafood export trade. Our consultancy services include market surveys, technical information and assistance in all phases of your project —from fishing through processing to exporting. If you're looking for a promising industry that is export-oriented, just drop us a line.

We'll help you to haul in your fortune in seafoods!

A fortune in our seas. Yours for the hauling.

MPEDA

THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY

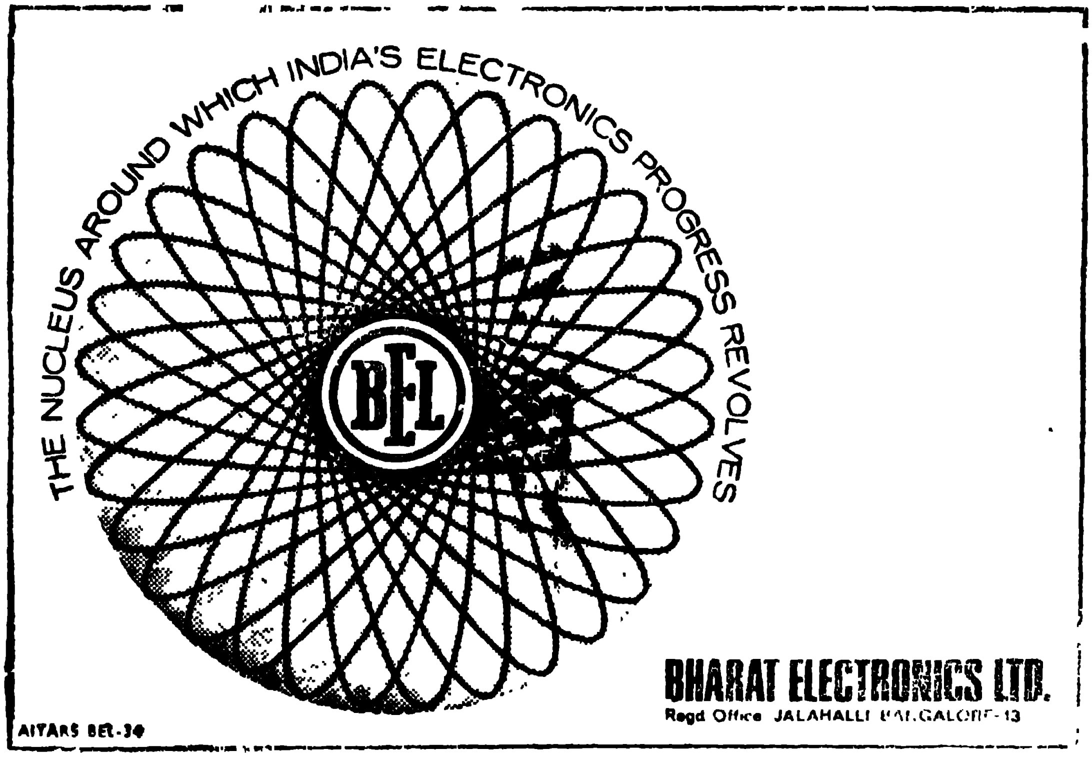
Government of India

Mahatma Gandhi Road, Cochin 682016

S N. Misra (Cong) 22, Gurdwara Rakabganj Road, New Delhi-1.
Awdhesh Chandra Singh (Cong) 120, South Avenue, New Delhi-11.
Maharaj Singh (Cong) 16, Janpath, New Delhi-1.
Mahadeepak Singh Shakya (JS) 160, South Avenue, New Delhi-11.
Rohanlal Chaturvedi (Cong) 15, Gurdwara Rakabganj Rd , New Delhi-1.
Chhatrapati Ambesh (Cong) 147, North Avenue, New Delhi-1.
Achal Singh (Cong) 87, North Avenue, New Delhi-1.
Chakleshwar Singh (Cong) 3, Dr. Bishamber Das Road, New Delhi-1.
Chandra Shailani (Cong) 3 & 5, North Avenue, New Delhi-1.
Shiv Kumar Shastri (BKD 1, Canning Lane, New Delhi-1.
Hari Singh (Cong) 221, North Avenue, New Delhi-1
Surendra Pal Singh (Cong) 10, Motilal Nehru Marg, New Delhi-11
B. P. Maurya (Cong) 11, Akbar Road. New Delhi-11.
Shahnawaz Khan (Cong) 14, Akbar Road, New Delhi-11.
Ram Chandra Vikal (Cong) 6, Dr. Rajendra Prasad Road, New Delhi-1.
Vijay Pal Singh (CPI) 72, South Avenue, New Delhi-11.
Shafquat Jung (Cong) 167, South Avenue, New Delhi-11.
Sunder Lal (Cong) 5, Canning Lane, New Delhi-1.
Mulki Raj Saini (Cong) 163, South Avenue, New Delhi-11.

WEST BENGAL—40

B. K. Daschowdhury (Cong) 46, South Avenue, New Delhi-11.
Tuna Oraon (Cong) 40, South Avenue, New Delhi-11.
Rattanlal Brahman (CPI-M) 12, North Avenue, New Delhi-1.
Smt. Maya Ray (Cong) 2, Circular Road, New Delhi-11.
R. N. Barman (Cong) 32, Janpath, New Delhi-1.
Dinesh Joarder (CPI M) 2, North Avenue, New Delhi-1.
Hazi Lutfal Haque (Cong) 170, North Avenue, New Delhi-1.
Muhammed Khuda Bukhsh (Cong) 25, Meena Bagh, New Delhi-11.
Tridib Chaudhuri (RSP) 30, Janpath, New Delhi-1.
R. P. Das (CPI-M) 522, Vithalbhai Patel House, New Delhi-1.
Smt. Bibha Ghosh Goswami (CPI-M) 501, Vithalbhai Patel House, New Delhi-1.
Ranen Sen (CPI) 58, Western Court, New Delhi-1.
A. K. M. Ishaque (Cong) 132, North Avenue New Delhi-1.
Sakti Kumar Sarkar (Cong) 150, North Avenue, New Delhi-1.
Madhuryya Haldar (CPI-M) 408, Vithalbhai Patel House, New Delhi-1.
Jyotirmoy Bosu (CPI M) 2, Dr. Bishember Das Marg, New Delhi-1.
Indrajit Gupta (CPI) 48, Western Court, New Delhi-1.
Mohammad Ismail (CPI M) 12, North Avenue, New Delhi-1.
A. K. Sen (Cong) 9, Raisina Road, New Delhi-1.
H. N. Mukherjee (CPI) 21. Gurdwara Rakabganj Road, New Delhi-1.
Priya Ranjan Das Munsi (Cong) 9, Ferozeshah Road, New Delhi-1.
Samar Mukherjee (CPI M) 9, Talkatora Road, New Delhi-1.
Shyama Prasanna Bhattacharyya (CPI-M) 503, Vithalbhai Patel House, New Delhi-1.
Dinen Bhattacharya (CPI M) 20, Dr. Rajendra Prasad Road, New Delhi-1.
Bijoy Modak (CPI M) 20, Dr. Rajendra Prasad Road, New Delhi-1.
Manoranjan Hazra (CPI-M) 20, Dr. Rajendra Prasad Road- New Delhi-1.
Jagadish Bhattacharyya (CPI-M) 315, Vithalbhai Patel House, New Delhi-1.
S C. Samanta (Cong) 7, Electric Lane, New Delhi-1.
Samar Guha (SP) 27. South Avenue, New Delhi-1.
Subodh Hansda (Cong) 21, Ashoka Road. New Delhi-1.
A. K. Kisku (Cong) 25, Ashoka Road, New Delhi-1
Debendra Nath Mahata (Cong) 158, South Avenue, New Delhi-11.
Shankor Narayan Sing Deo (Cong) 183, North Avenue, New Delhi-1.
Ajit Kumar Saha (CPI-M) 419, Vithalbhai Patel House, New Delhi-1.
Krishna Chandra Halder (CPI-M) 13 A, Ferozeshah Road, New Delhi-1.
Robin Sen (CPI-M) 13-A. Ferozeshah Road, New Delhi-1.
Somnath Chatteajce (CPI-M) AB/18, Mathura Road, New Delhi-1.
Saroj Mukherjee (CPI-M) 20, Dr. Rajendra Prasad Road, New Delhi-1.
Dr. Saradish Roy (CPI-M) 417, Vithalbhai Patel House, New Delhi-1.
Gadadhar Saha (CPI M) 319, Vithalbhai Patel House, New Delhi-1.


THE NUCLEUS AROUND WHICH INDIA'S ELECTRONICS PROGRESS REVOLVES
BEL

BHARAT ELECTRONICS LTD.
Regd Office JALAHALLI BANGALORE-13
AITARS BEL-34

Company Reg: No. 2370 Telephone: 3158

THE NEW KERALA CHITS & TRADES (P) LTD.

(Money lenders, Contractors, Agents, etc.)

H. O. PRESS CLUB BUILDING, QUILON-1

A decade of reputed service tradition
A chitty scheme giving maximum benefits to Officials and Teachers
The Chitty-money is given on very reasonable security

- * Loans
- * Financial Aid
- * Hire Purchase Advances
- * Special Chitties for Industrialists

II. UNION TERRITORIES

ANDAMAN & NICOBAR ISLANDS—1

K. R. Ganesh (Cong) 17, Teen Murti Marg, New Delhi-11.

ARUNACHAL PRADESH—1*

C. C. Gohain (Cong) 172, North Avenue, New Delhi-1.

CHANDIGARH—1

Amarnath Vidyalankar (Cong) 87, Shahjahan Road, New Delhi-11.

DADRA & NAGAR HAVELI—1

R. R. Patel (Cong) 96, South Avenue, New Delhi-11.

DELHI—7

Smt. Mukul Banerji (Cong) 6, Ferozeshah Road, New Delhi-1.
Shashi Bhushan (Cong) 4, Dr. Rajendra Prasad Road, New Delhi-1.
Chaudhry Dalip Singh (Cong) 33, Meena Bagh, New Delhi-11.
H. K. L. Bhagat (Cong) 225, Rouse Avenue, New Delhi-1.
Smt. Subhadra Joshi (Cong) 15, Balwantrai Mehta Lane, New Delhi-1.
Amar Nath Chawla (Cong) 155-157, North Avenue, New Delhi-1.
J. Sohan Lal (Cong) Block No. 6, Gali No. 4, House No. 6295 Dev Nagar, Karol Bagh, New Delhi-5.

GOA, DAMAN & DIU—2

Purushottam Kakodkar (Cong) 14, Windsor Place, New Delhi-1.
Erasmo De Sequeira (UIPG) 1, Balwantrai Mehta Lane, New Delhi-1

LAKSHADWEEP—1

P. M. Sayeed (Cong) 48, North Avenue New Delhi-1.

MIZORAM—1

Sangliana (Cong) 1, Meena Bagh, New Delhi-11.

PONDICHERRY—1

Aravinda Bala Pajanor (ADMK) 40, North Avenue New Delhi-1.

III. NOMINATED UNDER ARTICLE 331 OF THE CONSTITUTION

* ANGLO INDIANS—2

Frank Anthony (UIPG) 24-25, Western Court, New Delhi-1.
Smt. Marjorie Godfrey (UIPG) 59, Western Court, New Delhi-1.

Nominated by the President.

RAJYA SABHA

OFFICERS OF THE RAJYA SABHA

Chairman: B. D. Jatty
Deputy Chairman: Godey Murahari
Secretary General: B. N. Banerjee

STATE-WISE LIST OF MEMBERS OF THE RAJYA SABHA

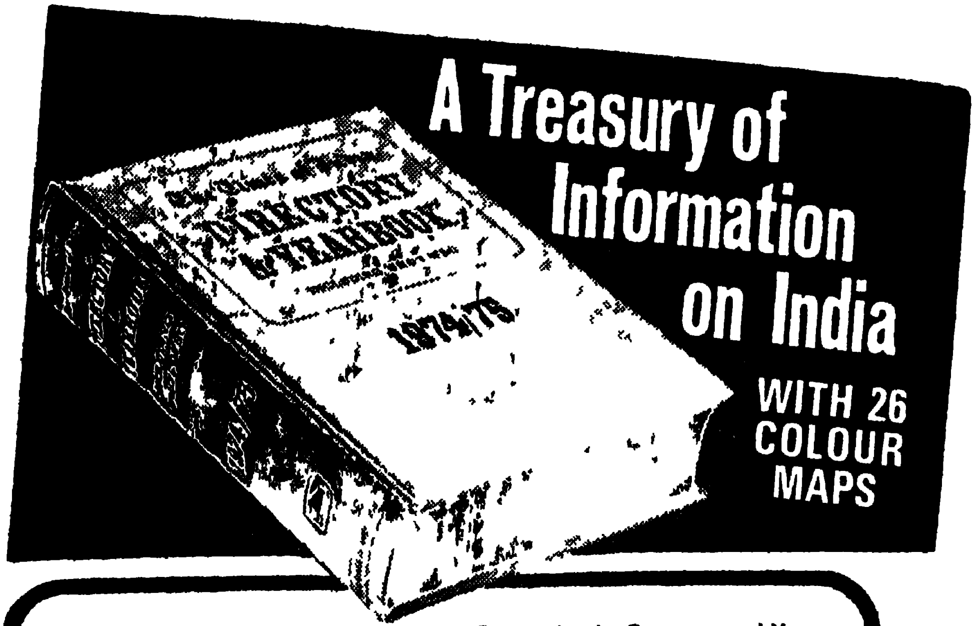
As on 31-12-1974

ANDHRA PRADESH—18

Janardhana Reddy (Cong) 27, Western Court, New Delhi.
A. S. Chowdhri (Ind) 11, Lodi Estate, New Delhi.
K. Brahmananda Reddi (Cong) 5, Janpath, New Delhi.
Bezawada Papireddi (Ind.) 44, Meena Bagh, New Delhi.
V. B. Raju (Cong) 6, Western Court, New Delhi.
Kota Punnaiah (Cong) 10, Gurudwara Rakabganj Road, New Delhi-1.
Venigalla Satyanarayana (Cong) 37, Meena Bagh, New Delhi.
M. Anandam (Cong) 191, North Avenue. New Delhi.
Kasim Ali Abid (Cong) 74, South Avenue, New Delhi-11.
V. C Kesava Rao (Cong) 19, North Avenue, New Delhi.
Gaddam Narayana Reddy (Cong) 13, Canning Lane, New Delhi,
Ratakonda Narasimha Reddy (Cong) 105 and 106 V P. House New Delhi.
K. L. N Prasad (Cong) 11, Janpath, New Delhi.
Smt. Rathnabai Sreenivasa Rao (Cong) 13, Meena Bagh, New Delhi.
Katragadda Srinivasa Rao (Ind) 46 41, Western Court, New Delhi.
K. V. Raghunatha Reddy (Cong) 92, Shahjahan Road, New Delhi.
M. R. Krishna, (Cong) 4, Kushak Road, New Delhi.
Mohammad Yunus Salim (Cong.) 7, Tughlak Lane, New Delhi.

ASSAM-7

Nripati Ranjan Chowdhury (Cong) 223, North Avenue. New Delhi
Bijoy Chandra Bhagavati (Cong) 7, Dupleix Road, New Delhi.
N. C. Buragohain (Cong) 66, North Avenue, New Delhi.
Sriman Prafulla Goswami (Cong) 201-B. V. P. House, New Delhi.
Bipinpal Das (Cong) 222, North Avenue New Delhi.



Backed by 118 years of experience The Times of India Directory and Yearbook is an incomparable work of reference!

In one easy-to-handle volume it brings to you all that you need to know about the country and its people

Statistical data on industrial output and its prospects the Food situation and Agricultural progress, Telecommunications, Atomic Energy, the havoc wrought by Floods and Droughts

Where to learn what how and when to see the myriad places of interest and game sanctuaries Central and State Ministries and Senior Government officials social cultural trade and professional associations Nobel prizes and Olympic records since their inception and a host of other chapters crammed with information you must know!

What is more this reference book has 300 pages on trades and professions and a Who s Who which gives you pen portraits of the most prominent people in the country

This book is a must for every business house library college and university in India and abroad

Let Rs. 75/- do for you what it has done for many others—saved needless waste of time and energy in searching for correct information

Releasing shortly

The Times of India
DIRECTORY & YEARBOOK 1974/75 INCLUDING WHO'S WHO

PRICE: Rs 75/-
POST-FREE

For details please contact:
THE CIRCULATION MANAGER
The Times of India
P O Box No 213, Bombay 1

Emonsing M. Sangma (Cong) 11, South Avenue, New Delhi.

D. K. Borooah (Cong) 23, Tughlak Road, New Delhi.

BIHAR-22

Dr. Ramkripal Sinha (JS) 208-209 V. P. House, New Delhi.

Smt. Aziza Imam (Cong) 37-39, South Avenue, New Delhi.

D. P. Singh (Cong) 28, Canning Lane, New Delhi.

Kamalnath Jha (Cong) 163, North Avenue, New Delhi.

Chandramani Lal Chowdhary (Cong) 75-North Avenue, New Delhi.

Gunanand Thakur (Cong) 13-B, Ferozeshah Road, New Delhi.

Shyamlal Gupta (Cong-O.) 510 V. P. House, New Delhi.

Bhupendra Narayan Mandal (BKD) 34, Ashoka Road, New Delhi.

Kamesshwar Singh (Cong) 58, North Avenue, New Delhi.

Yogendra Sharma (CPI) 16, Windsor Place, New Delhi.

Shishir Kumar (PSP) 115, V. P. House, New Delhi.

Dharam Chand Jain Cong 4, Safdarjang Lane, New Delhi.

Indra Deep Singh (CPI) 43, North Avenue, New Delhi.

Bhaiya Ram Munda (Cong) 203, North Avenue, New Delhi.

Smt. Jahanara Jaipal Singh (Cong) 6, Ashoka Road, New Delhi.

Bhola Prasad CPI 166, South Avenue, New Delhi.

Bhola Paswan Shashtri (Cong) 40, Western Court, New Delhi,

Sitaram Kesri (Cong) AB-2. Pandara Road, New Delhi.

Rajendra Kumar Poddar (Ind) 31, Meena Bagh, New Delhi.

Sitaram Singh (BKD) 98, South Avenue, New Delhi-11.

Awadheshwar Prasad Sinha (Cong) 27. Ferozeshah Road, New Delhi-1.

Smt. Pratibha Singh (Cong) 8, Dr R. P Road, New Delhi-1.

GUJARAT-11

Yogendra Makwana (Cong) 110, South Avenue, New Delhi

Smt. Sumitra G. Kulkarni (Cong) 7, Purana Quila Road, New Delhi,

D. K. Patel (JS) 33, North Avenue, New Delhi.

Smt. Kumudben Manishanker Joshi (Cong) 183, South Avn. New Delhi.

Himmat Singh (Cong) 102-104, South Avenue, New Delhi.

Ibrahim Kalania (Cong) 88, South Avenue, New Delhi.

H. M. Trivedi (Cong) 134, South Avenue, New Delhi.

Manubhai Shah (Cong) 8, Teen Murti Lane, New Delhi.

HARYANA-5

D. D Puri (Cong) 20, Western Court, New Delhi.

Ranbir Singh (Cong) 16, Mahadev Road, New Delhi.

Prabhu Singh (Cong) 221, V. P. House, New Delhi.

Krishan Kant (Cong) 2, Telegraph Lane, New Delhi

Sultan Singh (Cong) 140, South Avenue, New Delhi.

HIMACHAL PRADESH-3

Roshan Lal (Cong) 119, South Avenue, New Delhi.

Jagan Nath Bhardwaj (Cong) 3, Meena Bagh, New Delhi

Gian Chand Totu (Cong) 114, North Avenue, New Delhi

JAMMU AND KASHMIR-4

Om Mehta (Cong) 30, Prithvi Raj Road, New Delhi.

D. P. Dhar (Cong) 13, Safdarjung Road New Delhi.

Syed Dizam ud Din (Cong) 6, North Avenue, New Delhi.

Tirath Ram Amla (Cong) C I/5, Humayun Road, New Delhi.

KARNATAKA-12

Veerendra Patil (Cong-O) 10 A B Dr. Zakir Hussain Road, New Delhi

Malappa Lingappa Kollur (Cong) 18, North Avenue, New Delhi.

Dr. K. Nagappa Alva (Cong O) 4-Western Court, New Delhi.

Mulka Govinda Reddy (Cong) 10, Ferozeshah Road, New Delhi.

Smt. Margaret Alva (Cong) 28 Dr. R. P. Road, New Delhi.

T. A. Pal (Cong) 2, Hastings Road New Delhi.

B. Rachaiah (Cong) 7, Western Court New Delhi.

U. K. Lakshmana Gowda (Ind) 12, Meena Bagh, New Delhi.

Maqsood Ali Khan (Cong) 100, South Avenue, New Delhi.

K. S. Malle Gowda (Ind) 40 Meena Bagh, New Delhi.

B P, Nagaraja Murthy (Cong) 192, South Avenue, New Delhi.

H. S. Narasiah (Cong) 93, South Avenue, New Delhi.

Phone: 2746 Grams: 'INDOLEATHER'

Indo
Leather Industries

Eravipuram, Quilon
(KERALA)

Manufacturers of FOOTWEAR

Always ask for Reliable, Durable and Attractive

'Indo Products'

---

fashion conscious? so is....

Amarjothi

Amarjothi
FABRICS

Manufacturers
Amarjothi
Fabrics, Pvt Ltd.
P B No 22
Karur Tamil Nadu

Agent & Distributors
Amarjothi Traders
99 Godown Street
Madras-600001
Ph 28438

KERALA—9

Hamid Ali Shamnad (ML) 14, Western Court, New Delhi
P. K. Kunjachen (CPI.-M.) 118, V. P. House, New Delhi.
Smt. Leela Damodara Menon (Cong) 250, Ravindra Nagar, New Delhi
V. Vishwanatha Menon (CPI. M) 47, North Avenue. New Delhi.
B. V. Abdulla Koya (ML) 90, North Avenue, New Delhi.
Dr. V. A. Seyid Muhammed (Cong) 106, South Avenue, New Delhi.
Dr, K. Mathew Kurian (CPI-M.) 191, South Avenue, New Delhi.
K. Chandrasekharan (SP) 42, Western Court, New Delhi.
S. Kumaran (CPI) 13-D, Ferozeshah Road, New Delhi,

MADHYA PRADESH—16

S. C Angre (J S) 410 411, V. P. House, New Delhi.
Jagdish Joshi (Cong) 406/8, V P. House, New Delhi.
Pt Bhawaniprasad Tiwary (Cong) 38, Western Court, New Delhi
Smt. Vidyawati Chaturvedi (Cong) 89, Shahjahan Road, New Delhi.
Narayan Prasad Chaudhari (Cong) 136-138, North Avenue, New Delhi,
Mahendra Bahadur Singh (Cong) 94, South Avenue, New Delhi.
Balram Das (Cong) 120, North Avenue, New Delhi.
Vijaya Bhushan Deosharan (Ind) 32, South Avenue, New Delhi
Smt. Maimona Sultan (Cong) 2, Dr. R. P. Road, New Delhi.
Bhairon Singh Shekhawat (JS) 78, North Avenue, New Delhi.
Smt. Shyamkumari Devi (Cong) 81, South Avenue, New Delhi.
Chakrapani Shukla (Cong) 99, North Avenue, New Delhi.
Sawai Singh Sisodia (Cong) 5, Windsor Place, New Delhi.
Shankarlal Tiwari (Cong) 42, Meena Bagh, New Delhi.
Nand Kishore Bhatt (Cong) 8-E, Ferozeshah Road, New Delhi.
Virendra Kumar Sakhlecha (JS) 66, South Avenue, New Delhi.

MAHARASHTRA—19

Narayan Ganesh Goray (SP) 18, Windsor Place, New Delhi.
Shridhar Wasudeorao Dhabe (Cong) 162, South Avenue New Delhi.
Deorao Shivram Patil (Cong) 58, South Avenue, New Delhi.
Babubhai M. Chinai (Ind) 31, Ferozeshah Road, New Delhi.
Prof. Narendra Marutrao Kamble (Cong) 134, North Avenue, New Delhi.
R. D. Jagtap Avergoankar (Cong) 41, South Avenue, New Delhi.
Sikander Ali Wajd (Cong) 55, South Avenue, New Delhi
Vithal Gadgil (Cong) 5, Meena Bagh. New Delhi.
N. H. Kumbhare (Rep.) 202, South Avenue, New Delhi.
Arvind Ganesh Kulkarni (Cong) 86, Shahjahan Road, New Delhi.
Krishnarao Narayanrao Dhulap (PWP) 129, North Avenue, New Delhi.
Smt. Sushila Shankar Adivarekar (Cong) 35, Ashoka Road, New Delhi.
Gulabrao Reghunathrao Patil (Cong) 117, North Avenue, New Delhi.
Sankarrao Bajirao Bobdey (Cong) 22, North Avenue, New Delhi.
Jayant Shridhar Tilak (Cong) 36-38, North Avenue, New Delhi.
Shriniwas Ganesh Sardesai (CPI) 12 F, Ferozeshah Road, New Delhi.
D. Y. Pawar (BKD) 207, V. P. House, New Delhi,
Vinaykumar Ramlal Parshar (Cong) 194, North Avenue, New Delhi
Dr. M. R. Vyas (Cong) 122, South Avenue, New Delhi.

MANIPUR—1

Irenglam Tompok Singh (Cong) 142 South Avenue, New Delhi.

MEGHALAYA—1

Showaless K. Shilla (APHLC) 131 South Avenue, New Delhi.

NAGALAND—1

Khyomo Lotha (UDF) 133, North Avenue, New Delhi.

ORISSA—10

Brahmananda Panda (Cong) 35, South Avenue, New Delhi.
Binoy Kumar Mahanti (Cong) 26, Mahadev Road, New Delhi.
Chaitanya Prasad Majhi (Cong) 141, South Avenue, New Delhi.
Bira Kesari Deo (Swa) 12, South Auenue, New Delhi
K. P. Singh Deo (Swa) 97, South Avenue, New Delhi.
Rabi Ray (BKD) 21, Meena Bagh, New Delhi.
Lakshmana Mahapatro (CPI.) 9, South Avenue, New Delhi.
Lokanath Misra (Swa) 11, Dr Bishamber Das Marg, New Delhi.
Bhairab Chandra Mahanti (Cong) 35, Meena Bagh, New Delhi.
Smt. Saraswati Pradhan (Cong) 5, South Avenue. New. Delhi.

Coir for all seasons

Coir is a miracle floorcovering. It stays cool in summer. Keeps the chill off your feet in winter. Dust slides through it. It's hard-wearing and easily cleaned. Best of all, there's a wide, wide range of colours and designs to choose from.

Doormats ⁝ Matting ⁝ Mourzouks ⁝ Pile Carpets
Rubberised Coir Cushioning

Buy Coir-It's such a clever choice-

For your requirements
Please contact:

Secretary, Coir Board, Cochin-682016 (Kerala)

OR

Visit any of our Showrooms and Sales Depots at:

1. NEW DELHI: 16A, Asaf Ali Road [Tel: No. 271388]
2. BOMBAY: 5, Stadium House, Churchgate. [Tel: No. 295212]
3. CALCUTTA: 22 Louden Street. [Tel: No. 445287]
4. BANGALORE: 1-A, Mahatma Gandhi Road. [Tel: No. 51216]
5. MADRAS: 1/155, Mount Road, [Tel: No. 85787]
6. COCHIN: Karuna, M. G. Road. Opp: Kavitha Theatre. [Tel: No. 34277]
7. CHANDIGARH: S.C.O. 85, Sector 17-C. [Tel. No. 25753]
8. BHUBANESWAR: No. 17. Janpath Bapujee Nagar. [Tel: No. 50944]
9. MADURAI: 52, East Veli Street, Near Chinthamani Talkies [Tel: No. 25505]
10. PATNA: Biscomaun Bhavan, West Lawn.

OR

ANY OF OUR ACCREDITED DEALERS

PUNJAB—7

Mohan Singh (Cong.) 33, Lodi Estate, New Delhi.

Jagjit Singh Anand (CPI) 186, North Avenue, New Delhi.

Bhupinder Singh (Ak. Dl.) 79-81, North Avenue, New Delhi.

Sardar Gurcharan Singh Tohra (Ak. Dl.) 25, South Avenue. New Delhi.

Niranjan Singh Talib, Kapurthala House 3, Mansing Road, New Delhi.

Inder Kumar Gujral (Cong.) 9, Motilal Nehru Marg, New Delhi.

Gurmukh Singh Musafir (Cong.) 21, Ferozeshah Road, New Delhi.

RAJASTHAN—10

Nathi Singh (Cong.) 228, North Avenue, New Delhi.

Smt. Lakshmi Kumari Chundawat (Cong.) 4, Gurudwara Rakabganj Road, New Delhi.

Jagdish Prasad Mathur (JS) 32, Dr. Rajendra Prasad Road, New Delhi.

Jamna Bai Berwa (Cong.) 34, North Avenue, New Delhi.

Smt Narayanidevi Manaklal Varma (Cong.) 151-153, North Avenue, New Delhi.

Mohammed Usman Arif (Cong.) 74, North Avenue, New Delhi.

Ram Nivas Mirdha (Cong.) 17, Safdarjung Road, New Delhi

Rishi Kumar Mishra (Cong.) 216, North Avenue, New Delhi.

Kishan Lal Sharma (Cong.) 122, North Avenue, New Delhi.

Ganesh Lal Mali (Cong.) 98 North Avenue, New Delhi.

TAMIL NADU—18

A. K. Refaye (ML) 5-Western Court, New Delhi.

T. K. Srinivasan (DMK) 131, North Avenue, New Delhi.

K. A. Krishnaswamy (ADMK) 187 North Avenue, New Delhi.

Kanchi Kalyanasundaram (DMK) 112, North Avenue, New Delhi.

M. Kader Shah (DMK) 141, North Avenue, New Delhi.

M. Kamalanathan (DMK) C-1/19, Humayun Road, New Delhi.

C. D. Natarajan (DMK) 168, South Avenue, New Delhi.

S. S. Mariswamy (DMK) C-1/17, Humayun Road, New Delhi.

S, Rangathan, (Ind.) 210-B, Golf Link, New Delhi.

M. C. Balan (ADMK) 217, North Avenue, New Delhi.

S. S. Rajendran (DMK).

T. V. Anandan (Cong.—O) 108, North Avenue, New Delhi.

M. S. Abdul Khader (DMK) 41, North Avenue, New Delhi.

V. V. Swaminathan (DMK) 212, North Avenue, New Delhi.

A. K. A. Abdul Samad (M.L) 13-C Ferozshah Road, New Delhi.

G. Lakshmanan (DMK) 173, North Avenue New Delhi.

John alias Valampuri John (DMK) 115, North Avenue, New Delhi.

S. A. Khaja Mohideen (ML) 26, Dr R.P. Road, New Delhi.

TRIPURA 1

Birchandra Deb Barman (CPI) 15/120, V. P. House, New Delhi.

UTTAR PRADESH 34

Banarsi Das (Cong-O 4, Ferozeshah Road, New Delhi.

Dattopant Thengari (JS) 57, South Avenue, New Delhi.

Kalp Nath (Cong) 177, South Avenue New Delhi.

Sukhdev Prasad (Cong) 4, Akbar Road, New Delhi.

Jagbir Singh (BKD) 306, 523, V. P. House, New Delhi.

Devendra Nath Dwivedi (Cong) 18, Meena Bagh, New Delhi.

Piare Lall Kureel Urf Piare Lall Talib (Cong) 12-A, Ferozeshah Road, New Delhi.

Yashpal Kapur (Cong) A-B/8, Pandara Road New Delhi.

Nawal Kishore (Cong O) 63, North Avenue, New Delhi.

Mahavir Tyagi (Cong. - O) 16, Dr R P. Road, New Delhi.

Harsh Deo Malaviya (Cong) 135-137 North Avenue, New Delhi.

Prof. S. Nurul Hasan (Cong) 5. Safdarjang Road, New Delhi.

Triloki Singh (Cong) 11, Electric Lane, New Delhi.

Prakash Veer Shastri (JS)

Anand Narain Mulla (Cong) 29, Ferozeshah Road, New Delhi.

Mahadeo Prasad Verma (B K D) 61, South Avenue, New Delhi.

Mohan Singh Oberoi (B K D) Oberoi Maidens Hotel, Delhi.

Nageshwar Prasad Shahi (Cong) 211, North Avenue, New Delhi

Best Wishes from:-

Natesan's
ANTIQARTS

BOMBAY
BANGALORE
TRIVANDRUM

Gram: "KAKSONS" Phones: 2146 & 2669

K. A. KARIM & SONS
QUILON-4
KERALA

Importers, Exporters and
Manufacturers of
Cashew Kernels and
Cashew Shell Liquid.

Kalyan Chand (Cong) 62, South Avenue, New Delhi.

T. N. Singh (Cong-O) AB-5, Pandara Road, New Delhi.

Uma Shankar Dikshit (Cong) 12, Akbar Road New Delhi.

Chandra Shekhar (Cong) 3, South Avenue, Lane, New Delhi.

Rajnarain (B K D) 8, Dr. Bishambar Hass Marg, New Delhi.

Shiv Dayal Singh Chaurasia (Cong) 416, V. P. House, New Delhi.

Dr. V. B. Singh (Cong) 224, North Avenue, New Delhi.

Dr. Z. A. Ahmad (CPI) 23, Canning Lane, New Delhi.

Godey Murahari (Ind.) 25, Tughlak Road, New Delhi.

Om Prakash Tyagi (J S) 122, V. P. House. New Delhi.

Subramannian Swamy (J S) 22/520, V. P. House, New Delhi.

Shyam Lal Yadav (BKD) 181, South Avenue, New Delhi.

Mahabir Prasad Shukla (Cong) 15, Janpath, New Delhi.

Inder Singh (Cong) 2, Meena Bagh, New Delhi.

Kamlapati Tripathi (Cong) 9, Janpath New Delhi.

Syed Ahmad Hashmi (Cong) 8, South Avenue, New Delhi.

WEST BENGAL— 16

Sasankasekhar Sanyal (CPI-M) 6, Vithalbhai Patel House, New Delhi.

Suhrid Mullick Choudhury (FB) 88, North Avenue, New Delhi.

Sardar Amjad Ali (Cong) 99, South Avenue, New Delhi.

Dr. Rajat Kumar Chakrabarti (Cong) 220 North Avenue, New Delhi.

Krishna Bahadur Chettri (Cong) 121, South Avenue, New Delhi.

Dwijendralal Sen Gupta (Ind.) 19, Gurudwara Rakabganj, Rd. New Delhi.

Bhupesh Gupta (CPI) 5, Ferozeshah Road. New Delhi.

Kalyan Roy (CPI) 63, South Avenue, New Delhi.

Dr. Debiprasad Chattopadhyaya (Cong) 1, Sonehri Bagh Road, New Delhi.

Kali Mukherjee (Cong) 14-A Ferozeshah Rd., New Delhi.

Smt. Purabi Mukhopadhyay (Cong) 11, Canning Lane, New Delhi.

Salil Kumar Ganguli (CPI-M) 8, Windsor Place, New Delhi.

Niren Ghosh (C P I-M) 12-B. Ferozshah Road, New Delhi.

Sanat Kumar Raha (CPI) 70, South Avenue, New Delhi.

Pranab Mukherjee (Cong) 15, Pt. Pant Marg, New Delhi.

Monoranjan Roy (CPI—M) 12-B. Ferozshah Road, New Delhi.

II UNION TERRITORIES

ARUNACHAL PRADESH—1

Todak Basar (Ind) 53, South Avenue, New Delhi.

DELHI—3

Khurshed Alam Khan (Cong) 2, Moti Lal Nehru Place, New Delhi.

Smt Savita Behen (Cong) CI/12, Humayun Road, New Delhi.

Lal K. Advani (JS) 17, C-1/6, Pandara Park, New Delhi.

MIZORAM—1

Lalbuaia (Cong) 8, Meena Bagh, New Delhi.

PONDICHERRY—1

S. Sivaprakasam (DMK) 193, North Avenue, New Delhi.

III NOMINATED BY THE PRESIDENT UNDER ARTICLE 80 (1) (a) OF THE CONSTITUTION—12

Prof. Rasheeduddin Khan C1/13, Pandara Park, New Delhi.

Chandra Kisan Daphtary A/8, Maharani Bagh, New Delhi.

Umashankar Joshi 301, V.P. House New Delhi.

Jairamdas Daulatram 14, Tughlak Road, New Delhi.

Pramatha Nath Bisi 16-C, Ferozeshah Road, New Delhi.

Dr. Lokesh Chandra J 22, Hauz Khas Enclave, New Delhi.

Smt. Maragatham Chandrasekhar 12, Lytton Lane, New Delhi.

Krishna Kripalani 34, South Avenue, New Delhi.

Habib Tanvir 95, South Avenue, New Delhi.

Abu Abraham 113, South Avenue, New Delhi.

Scato Swu 19, South Avenue, New Delhi.

Dr. V.I.P. Dutt 17-Balwantrai Mehta Lane, New Delhi.

SREE KRISHNA TEMPLE, GURUVAYUR

(THE GREAT FAMOUS PILGRIM CENTRE IN INDIA)

The great sacred Temple of Guruvayur attracting numerous worshippers daily from various parts of India.

Guruvayur Temple is situated in Trichur District Kerala State.

The nearest railway stations are Trichur, Shoranur, Kuttippuram and Wadakkancherri (S. R.). The distance from Shoranur to Guruvayur is 32 miles, from Trichur 18 miles, Kuttippuram 34 miles.

As the visitors to Guruvayur Temple are increasing day by day:

* Irrespective of the festival days and seasons it will be in their own interest to book in advance accommodation for their stay in Guruvayur Devaswom Sathram (Phone 35 – Chavakkad – Guruvayur)

* Information about the 'Udayasthamana pooja', Regular Daily pooja routine offerings etc. Pilgrims may contact the Temple Manager (Phone No. 280).

* The Guruvayur Devaswom Office runs the whole Administration of the Guruvayur Temple. Phone 335.

Guruvayur, ***Sd/***
25-11-1974. ***ADMINISTRATOR.***

DIPLOMATIC PERSONNEL

INDIAN EMBASSIES ABROAD

(As on 31-12-1974)

AMBASSADORS

Afghanistan. Kumar Ram Pratap Singh Malali Wat, Shahr-e-Nau, Kabul.

Algeria, S. Shahabuddin, 119 ter Rue Didouche Mourad, Algiers.

Arab Emirates, Union of: E. H. Rizvi, Embassy of India, Hotel Al Ain Palace, C/o P. Box No. 4090 Abu Dhabi.

Argentina. (also Amb. to Paraguay & Uruguay), M. M. Khurana, Paraguay 580 (3rd Flr., Buenos Aires.

Austria. A. S. Mehta, Embassy of India 1. Opernring, A1010, Vienna-I.

Bahrain. P. M. S. Mallik, Govt. Road, Manama, Bahrain.

Belgium. (Also Amb. to Grand Duchy of Luxembourg) K. B. Lal, Avenue Moliere, 121 Brussels 1180.

Bolivia. (Also Amb. to Brazil) Prithi Singh. Resident in Brasilia (Embassy of India, La Paz).

Brazil. (Also Amb. to Bolivia) Prithi Singh, Edificio Venancio-VI, 10 Sub Sole, Lote, E 8, Sector de Diversoes Sul, Brasilia-DF.

Bulgaria K. P. Lukose, Embassy of India, 31 Blvd. Patriarch Eftimil, Sofia.

Burma. N.P. Alexander. Oriental Assurance Bldgs, 545-47Merohant St. Rangoon.

Burundi (Kingdom of) (Also Amb. to the Republic of Rwanda & High Commr. to Uganda H. H. Singh. Resident in Kampala (Embassy of India, Bujumbura).

Cameroun. (Also Amb. to Dahomey and Togo & High Commr. to Nigeria). S. K. Roy, Resident in Lagos (Embassy of India, Yaounde).

Chile. (Also Amb. to Ecuador) G. J. Malik, 871, Triana, Santiago.

China (People's Republic of) Minister & Charge-d-Affaires. L. L. Mehrotra, 8 Kwang Hua Lu, Peking.

Colombia. Madan Jeet Singh. Carrera 7, No. 87-20, Apartment No. 104, Bagota.

Congo (Brazzaville) (Also Amb. to Zaire Republic & Gabon) Syed Waheed Zaman, Resident in Kinshasa.

Costa Rica. (Also Amb. to Panama) P. P. D'Souza, Resident in Panama City (Embassy of India, San Jose).

Cuba. R. Tandon, Calle 21 NRO 202, esquina a K. Vedado, Havana.

Czechoslovakia. V. Siddharthachary Valdstejnska 6,Malastrana, Prague-1.

Dahomey. (Also Amb. to Cameroun and Togo & High Commr. to Nigeria S. K, Roy. Resident in Lagos (Embassy of India, Contonou)

Denmark. Mrs. K. Rukmini Menon Embassy of India 8-11, Amagertory, 1160 Copenhagen.

Ecuador. (Also Amb. to Chille) G J. Malik, Resident in Santiago

Egypt. Arab Republic of: A B. Bhadkamkar, Embassy of India, 5, Sharia Maahad el Swissri, P.O. 718 Cairo.

Ethiopia. V. V Paranjpe, Embassy of India P O. 528, Addis Ababa.

Finland. M. K. Roy, Embassy of India, Kansakoulukatu, 5B 14, Helsinki 10.

France. D. N. Chatterjee. Embassy of India, 15 Rue Alfred Dehodencq, Paris 16.

Gabon. (Also Amb to Zaire Republic & Brazzaville-Congo) Syed Waheed Zaman. Resident in Kinshasa.

German Democratic Republic. A. H. Deo Embassy of India, Clara-Zetkin Strasse 97/1, 108-Berlin.

Germany Federal Republic of Y. K. Puri, Embassy of India, 262, Adenauerallee, 53, Bonn.

Greece. (Also Amb. to Yugoslavia) P. N Menon, Resident in Belgrade (Embassy of India, Athens).

Guatemala. (Vacant), Embassy of India Guatemala.

Guinea. V. K. Mallinatha Menon, Embassy of India, Avenue de la Republique Immeuble, Kebe, B. P. 1861 Bis. Conakry 1.

Hungary. K. P. Sankara Menon, Embassy of India, Buzavirag Utca 14, Budapest II.

Iceland. (Also Amb. to Norway) S. N. Chopra, Resident in Oslo.

Indonesia. Mahboob Ahmad, Embassy of India 44 Kebon Sirih, Jakarta.

Iran. R. D. Sathe, Embassy of India 166 Avenue Saba Shomali, P. Box No 2473, Tehran.

Grams:
"MOTORS"

Phone: 3872
62988
4557

R. K. V. MOTORS & TIMBERS
Private Limited

Post Box No. 80
Trivandrum - I

Transport operators & Forest Contractors

Branches:

ATTINGAL
Phone: 25

MADURAI
Phone: 25038

MILCO ICE CREAM
A NEW PRODUCT OF
THE KOTTAYAM DISTRICT CO-OPERATIVE
MILK SUPPLY UNION LTD.

Quality - Best ⁑ Flavour - Attractive ⁑ Taste - Very good

For your requirement of:

MILCO ICE CREAM

Contact:

THE KOTTAYAM DISTRICT CO-OPERATIVE MILK SUPPLY UNION LTD., KOTTAYAM

who are the only distributors of PASTEURISED Milk in Kottayam District.

Telephone: 3107, 4107, 8112

Iraq. K. R. P. Singh. Taha St. Nageeb Pasha Adhamiya, Baghdad

Ireland. S. V. Patel, Embassy of India, 58 Upper Leeson St. Dublin 4.

Italy. (Also High Commr. to Malta) Apa B. Pant, Embassy of India, Via Francesco Denza, 36, Rome.

Ivory Coast. (Also Amb to Senegal, Mauritania & Upper Volta and High Commr. to Gambia) S. H. Desai, Resident in Dakar Embassy of India, Abidjan.)

Japan. S. Thiruvenkadathan, Embassy of India, 2-Chome, 2-11, Kudan Minami Chiyodaku, Tokyo.

Jordan. (Also Amb. to Lebanon and High Commr. to Cyprus (Vacant) Resident in Beirut. Embassy of India, 1st Circle Jabel, Amman.

Khmer Republic. (formerly Cambodia) (Vacant), Embassy of India, 29 Samdech Tieng, Phnom Penh.

Korea Republic of. Syed Muzaffa Aga, Embassy of India P. Box 3466. Seoul.

Korea. Democratic People's Republic of (Vacant) Embassy of India: Pyong Yong.

Kuwait. R. Axel Khan. Embassy of India Ring Rd. No. 1, Bldg. No. 3, Dasmah, Kuwait.

Laos. B. Deva Rao, Embassy of India, P. O. Box No. 225, Rue Pangkham, Vientiane.

Lebanon. (Also Amb. to Jordan and High Commr. to Cyprus) S. K. Singh Embassy of India, Sahmarani Bldg, 31 Kantari St. Beirut.

Liberia. (Also High Commr. to Ghana & Sierra Leone,) S. Bikram Shah. Resident in Accra, Embassy of India, Monrovia.

Libya. Homi J. H. Taleyarkhan, Embassy of India, 16/18 Sh. Armondi Garden City, P. O Box 3150, Tripoli

Luxembourg (Also Amb. to Belgium,) K. B. Lall. Resident in Brussels.

Malagasy. K. R. Krishnaswami, Embassy of India, 77, Ave Marchal Foch, Tananarive.

Maldives. Vincent H. Coelho (Also High Commr. to Sri Lanka) Resident in Colombo.

Mali. (Vacant.) Embassy of India, Bamako

Mauritania. (Also Amb. to Senegal, Ivory Coast & Upper Volta and High Commr. to Gambia) S. H. Desai. Resident in Dakar (Embassy of India, Nouackchott)

Mexico. Also Amb. to Nicaragua, (Vacant) Embassy of India, Comte 44, Mexico, 5-D. F.

Mongolian People's Republic. Sonam Narboo. Embassy of India, 26 Peace St., Ulan Bator.

Moroco. (Also Amb. to Tunisia), M. M. Nair, 10 Avenue de Champagne, (Agdal), Rabat.

Nepal. M Rasgotra, Embassy of India, G P O. Box 292, Kathmandu

Netherlands. (Vacant Embassy of India, Buitenrustweg 2, The Hague.

Nicaragua. (Also Ambassador to Mexico) (Vacant) Resident in Mexico City.

Norway. Also Amb to Iceland S. N. Chopra. Embassy of India, Shovveien 12, 1st Flr. Oslo 2

Oman. Sultanate of Nirmal Ject Singh. Embassy of India, P. Box 77, Muscat.

Panama, (Also Amb. to Costa Rica) P. P. D'Souza. Embassy of India, Apartment 201 & 202 Dorchester Bldg. Via Espana, P. Box Enterga General Barrio, Panama 7, Panama City.

Paraguay. (Also Amb. to Argentina & Uruguay M. M. Khurana Resident in Buenos Aires. (Embassy of India, Asuncion)

Peru. A. R. Sethi. Embassy of India, Paseo De Lal Republica 291 of 1201, Lima.

Philippines P. S. Nasakar. Embassy of India, RM 502 Compos Rueda Bldg. 101 Tindalo St Makati Rizal (Greater Manila)

Poland. Dileep Kamtekar. Embassy of India. No. 16, Niegolewskieg, Warsaw 86.

Qatar. Arif Qamarain, Embassy of India Sheikh Suheim Villa No. 5, El Sheikh Suheim St. P Box No. 2788, Doha.

Rumania. V. K. Ahuja, Embaasy of India, 16, Srt. Stefan Gheorghiu 16, Bucharest.

Rwanda (Republic of) Also Amb. to the Kingdom of Burundi & High Commr. to Uganda H. K. Singh. Resident in Kampala,

Saudi Arabia. Zahir Ahmed Embassy of India, Sulaiman Ali-Turki Bldg. Al Sharafiah, Airport Rd. Jeddah

Senegal. (Also Amb. To Ivory Coast, Mauritania & Upper Volta and High Commr. to Gambia) S. H. Desai, Embassy of India, B. P. 398, Dakar.

Somalia. J. B. Muthyal Rao. Embassy of India P. Box No. 955, Mogadishu

Spain. V. M. M. Nair, Embassy of India, Velazquez, 93 Madrid.

Sudan, I. P. Singh, Embassy of India, P. Box No. 707 Khartoum.

Sweden. A. K. Damodaran, Embassy of India, Adolf Fredriks Kyrkoata 12 II, Box No. 1340 S-11183 Stockholm.

You Name the Vehicle
We have the Tyres & Tubes for them
Available at All Time, all Brands

FOR

Scooters, Motor Cycles, Cars & Trucks,
Buses, Tractors, Hand-Carts, etc.

FAIR PRICE-PROMPT ATTENTION

Blue Mountain
TYRES

200B, DR. NANJAPPA ROAD, COIMBATORE-18.

Phone: 32694

ASSOCIATE CONCERNS:

153, Main Road, Mettupalayam.	Phone: 402
7/418-A, Court Road, Calicut-1.	Phone: 73273
Thiruvembodi Devaswom Buildings Round West-Trichur-1.	Phone: 2460

ALL POPULAR BRANDS OF TYRES & TUBES
ARE ALWAYS IN OUR STOCK

CUSTOMERS SATISFACTION IS OUR ASSET

Switzerland. (Also Amb. to the Vatican) Avtar Singh. Embassy of India, 20 Kalcheggeweg, 3000 Berne.

Syrian Arab Republic. K. A. Nizami. Embassy of India 40/46, Adhan Malki St. Yassin Houcilati, Damascus.

Thailand. (Also Permanent Rep of India to ECAFE)Romesh Bhandari. Embassy of India, 139 Pan Rd. Bangkok.

Togo. (Also Amb. to Cameroun & Dahomey and High Commr. to Nigeria) S. K. Roy, Resident in Lagos (Embassy of India, Lome).

Tunisia. (Also Amb. to Morocco) Pranab Kumar Guru, Resident in Rabat, Morocco.(Embassy of India. Rue duler Juin, 5, Impasse de Boulogne. Tunis.)

Turkey. Balachandra Menon. Embassy of India No. 24, Kibris Sokak, Cankaya, Ankara.

United States of America. T. N. Kaul. Embassy of India, 2107 Massachusetts Avenue, N. W. Washington D. C. 20008.

Upper Volta (Also Amb. to Senegal, Mauritania & Ivory Coast and High Commr. to Gambia), S. H. Desai, Resident in Dakar (Embassy of India, Ouagadougou)

Uruguay. (Also Amb to Argentina & Paraguay) M. M. Khurana. Resident in Buenos Aires (Embassy of India, Monteviedeo)

U S S R. Dr. K S. Shelvankar. Embassy of India, No. 6-8, Ulitsa Obukha, Moscow.

Vatican (Also Amb. to Switzerland) Avtar Singh. Resident in Berne.

Venezuela. A. R. Kakodkar, Embajada de la India Edificio Nuevo Centro, Avenida. Libertador, Apartado de Correos del Este. 61585, Chacao, Caracas 106.

Vietnam Democratic Republic of. Dr. Sisir Gupta. 58, Tran Hung Dao St. Hanoi,

Yemen, Arab Republic. (Vacant) Embassy of India, Al-Amir Bldg. Gamal Abdul Nasser St. Sanaa.

Yemen, People's Democratic Republic of. (Vacant) Embassy of India, Premjee Chambers, Steamer Point, Aden.

Yugoslavia. (Also Amb. to Greece) P. N. Menon. Embassy of India, Proleter Sikh Brigade 9, Belgrade

Zaire Republic. (Also Amb. to Brazzaville-Congo & Gabon) Syed Waheed Zaman. Embassy of India, 18 B, Avenue des Batetela, Kinshasa.

HIGH COMMISSIONS

High Commissioners

Australia. Dr. Sumal Sinha. 92 Mugga Way. Red Hill, Canberra, A.C.T. 2603.

Bangaladesh. Samar Sen. Indian High Commission, Road No. 2, Dhanmondi Residential Area, Dacca-2. Asst. High Commissions of India:- 1) 1/B, Baizid Bostami Rd. Nasirabad, Chittagong; 2) Rajshahi.

Barbados. (Also High Commr. to Trinidad & Tobago and Jamaica Counsul-General to Surinam) S M. Aga Resident in Port of Spain (Trinidad) High Commission of India, Bridgetown.

Botswana. Also High Commr. to Zambia Krishnan Srinivasan Resident in Lusaka.

Canada. U. S Bajpai. High Commission of India, 200, McLaren St. Ottawa K 2P 016.

Cyprus (Also Amb to Jordan & Lebanon S. K Singh) Resident in Beirut. (High Commission of India, Nicosia)

Fiji. (Also High Commr. to Tonga. Bhagwan Singh. Suit No. 202, Fiji Dev Bank Bldg). Victoria Parade, Suva Jurisdiction extends to the UN Trust Territory of Caroline & Marshal Island; Nauru; Solomon Island, New Hebrides; Gilbert & Elice Islands; New Caledonia & Society Islands

Gambia. Also Amb. to Senegal, Ivory Coast Mauritania & Upper Volta, S. H Desai, Resident in Dakar.

Ghana. (Also Amb. to Liberia & High Commr, to Sierra Leone) S Bikram Shah. High Commission of India P. Box 3040, Accra.

Guyana. Dr. Gopal Singh. No. 10, Avenue of the Republic, P. Box 872, Georgetown,

Jamaica. (Also High Commr) to Trinidad & Tobago and Barbados and Consul-General to Surinam). S. M. Aga. Resident in Port of Spain. High Commission of India Kingston.

Kenya. K, C. Nair. Jeevan Bharati Bldg. Harambee Avenue, Nairobi.

Lesotho. Also (High Commr. to Malawi & Swaziland.) S. V. Purushotham. Resident in Blantyre.

Malawai. A. K. Dar. High Commision of India P. Box No. 681, Blantyre.

Malaysia. A. K. Dar, High Commission of India P. Box No. 59, 19, Jalan Melaka, United Commercial Bank Bldg. Kuala, Lumpur.

Phone: 4142

TRIVANDRUM HOTEL

(South of Secretariat)

TRIVANDRUM

"The cleanest Hotel in the City"
Single, Double and Family Rooms
Bath attached and well furnished
High Class Vegetarian Boarding & Lodging
Tourist Taxi available

Premier Cotton Spinning Mills Ltd.

Kanjikode West

Palghat-7

Manufacturers of Quality Yarn
[Carded & Combed]

60s }
80s } Hank and cone
100s }

Malta. Also Amb. to Italy Apa B. Pant. Resident in Rome (High Commission of India, Valetta)

Mauritius. K. B. Sharma. High Commission of India, Bank of Baroda Bldg. Sir William Newton St. Port Louis,

New Zealand, Also High Commr. to Western Samoa L. N. Ray, 49 Willis Street, Wellington.

Nigeria. (Also Amb. to Cameroun, Dahomey & Togo Republics) S. K. Roy. High Commission of India, 107, Awolowo Rd. Lagos. Information Service of India, South West-Ikoyi, P. O. Box 2322, Lagos.

Sierra Leone. Also High Commr. to Ghana & Amb. to Liberia, S. Bikram Shah. Resident in Accra. High Commission of India, Freetown.

Singapore, Thomas Abraham. High Commission of India, India House, 31, Grange Rd Singapore.

Sri Lanka (Aslo Amb. to Maldives) Vincent H. Coelho. State Bank of India Bldg. Sir B. Jayatilleke Mawatha, Fort, Colombo-1. Asst, High Commissioner: P. R. Nambisan 31 Rajapihilla Mawatha, Kandy.

Swaziland. (Also High Commr to Lesotho and Malawi S. V. Purushotham. Resident in Blantyre.

Tanzania. Narendra Singh. High Commission of India, 28 Independence Avenue, Dar-es-Salaam.

Tonga. (Also High Commr. to Fiji) Bhagwan Singh, Resident in Suva.

Trinidad & Tobago. (Also High Commr. to Jamaica & Barbados. Commr to the Associated States—Antigua, Grenada, Dominica,St. Vincent Monteserrat, the Bahamas, Turks & Caicos and also Cayman Islands; Consul General to Surinam) S. M. Aga. P Box No. 530, Port of Spain (Trinidad)

Uganda. (Also Amb. to the Kingdom of Burundi and Republic of Rwanda). H. K. Singh. Bank of India Bldg Kampala Rd. Kampala.

United Kingdom. B. K. Nehru. Dy. High Commr. K. Natwar Singh. India House. Aldwych., London, W. C. 2. 34 NA. Asst. High Commissions of India (1) 86, New St. Birmingham. (2) Jaeger House, 62 Buchanan St. Glasgow.

Western Samoa. (Also High Commr. to New Zealand) L. N. Ray, Resident in Wellington.

Zambia. (Also Higb Commr. to Botswana) Krishnan Srinivasam High Commission of India, P. O. Box 2111, Lusaka.

Special Missions

Bhutan. Representative of India. A. B. Gokhale. Lungtenzempa, Thimphu.

Sikkim. Political Officer in Sikkim. K. S. Bajpai. Gangtok *via* Siliguri (West. Bengal)

United Nations. Ambassador/Permanent Representative Rikhi Jaipal. Permanent Mission of India to the United Nations, New India House, 3-East 64th St. New York. Geneva Office. 2 Place des Eaux-Vives, Geneva. Ambasador/Permanent Rep. B, C. Mishra, Permanent Mission of India to the Intnl Atomic Energy Agency, Opernringhopl. Vienna 1 Amb./Permanent Rep. R. Jaipal.

Laos. Chairman/Secy. General, I C. S. C- and Leader of Indian Delegation. C. R. Gharekhan. International Commission for Supervision & Control in Laos, Vietiane.

COMMISSIONS

Hong Kong Commissioner for the Govt. of India. A. Madhavan. Commission of India. LIC Bldg. Stubbs Rd Hong Kong.

Mombasa. Asst. Commissioner S.C. Shah. Commission of India, LIC Bldg Nkrumaha Rd. Mombasa (Kenya)

CONSULATES GENERAL & CONSULATES

Asuncion (Paraguay). Consul General. Antonio Rodolfo Zuccolillo. Consulate General of India, Cerro Coray Paraguari. Asuncion.

Athens. Consul General. L. E Vafiadis Consulate General of India, 1, Valaoritou St. Athens 134.

Barcelona (Spain) Consul. Louis Valeriano Gonzalez Perez, Consulate of India, Calle Mastro Perez Cabrero 3, Barcelona.

Basrah (Iraq) Consul. Prabhu Dayal Singh Consutate of India, Palestine Rd. Basrah.

Berlin. Consul General. S. L. Kaul Kilam, Consulate General of India, Joachimstaler Strasse 28 (1st Floor) Berlin-1

Bogota (Colombia). Consul General, Dr. Antonio Izquiesdo D., Consulate-General of India, Callee 86A, No. 19-13, Bogota.

DEVON PLASTICS

Offer

**Polythene film rolls
from 100 gauge to 1000 gauge
Nursery bags, fancy handle bags,
liners, polybags and lamination
on high density woven fabric.**

◆

DEVON PLASTICS
DHUN BUILDING
175/1, Mount Road
Madras-600002

Canary Islands. Consul. C, Bulchand. Consulate of India, 35 Triana, Las Palmas.

Chiangmai (Thailand) Consul. S. S, Pandey, Consulate of India No. 88/2, Keo Navartha Rd. Chiangmai.

Chicago. Vice-Consul. Eustace Pereira, Vice-Consulate of India, 201, North Michigan Ave., Chicago. Illinois 60601

Cleveland (Ohio) Consul. Col. George P. Bickford, Consulate of India, 1144, Union Commerce Bldg- Cleveland.

Copenhagen (Denmark) Consul General for India. Victor B. Strand. 36. Kronprinsessegade 36, D. K. 1309, Copenhagen.

Dubai. Consul General. S. P. R. Bhatia, Consulate General of India, Post Box 737, Dubai.

Frankfurt. Consul General (Consular Jurisdiction includes the States of Hessen, Rheinland & Saarland) Y. Sinha, Consulate General of India, Wilhelm Leuschner Strasse 93 (2nd Floor) 6, Frankfurt Main.

French Territory of Afars & Issas. Consul. S. J. Kothari, Consulate of India, P. Box 171, Djibouti.

Geneva. Consul, Miss S. Balasubramaniam, Consulate of India 2 Placedes Eaux-Vives, Geneva.

Genoa (Italy Consul Jack Clerici Consulate of India Via Martin Piaggio-15 Genoa.

Ghent (Belgium) Consul General, Robert Desprechins, Consulate General of India, Lt. Willemootlaan 5, 9910 Mariakerk.

Hamburg. Consul General. N C. Banerjee, 14 VI, 2 Burchardstras. Sprinkenhof, 2 Hamburg 1. (Consular jurisdiction includes the States of Hamburg, Bremen, Schleswig Holstein and Lower Saxony).

Hawaii (Honolulu) Consul. Mrs. G. J. Watumull. Consulate of India, 2227—A, Kalakaua Avenue, Honolulu.

Jalalabad (Afghanistan) Consul. S. S. Pradhan. Consulate of India, 146, Nahiya Shahr-e-Nau, Jalalabad.

Kandhar (Afghanistan) Consul. S. K. Pradhan. Consulate of India, Kandhar.

Khorramshahr (Iran) Consul. Parminder Singh Consulate of India 160 Ferdousi Ave., Khorramshahr.

Kobe (Japan) Consul General K. V. N. Menon, Consulate General of India 23-1 Yamomotodori, 5-Chome, Ikuta-Ku, Kobe.

Mandalay (Burma) Consul. Rajinder Dutt Consulate of India, 68th Street, Mandalay.

Medan (Indonesia) Consul General. L.K. Mukherjee, Consulate General of India, 19, Djalam, Uskup Agung A. Sugiopranoto, Meda.

Montevideo (Uruguay) Consul. Adolf Vegh, Consulate of India Plaza Zabala 324, Montevideo.

Munich: Consul General. Robert Gedon. Consulate General of India, Leopold Str. 87, Munich 2.

New Orleans. Consul General. Neils h. Johnson. Consulate General of India, 2701, International Trade Mart, New Orleans, L A 70120.

New York. Consul General. A K. Ray. Consulate General of India, 3 East, 64th Street, New York N. Y. 10021.

Odessa (USSR) Consul. Bhoj Raj, Consulate General of India, 31, Kirov Street, Odessa.

Panama. Consul. I. S. Randhawa Consulate of India, P. Box No. 1303 Panama-1.

Port Sudan (Sudan) Consul. S. J. Mithane. Consulate of India, Jadavjee Bldg. St. No. 11, Port Sudan.

Rio de Janeiro (Bazil) Consul General. Dr. Zilmar Montaury Consulate General of India, A. V Beira Mar 454 Group 3., Castelo, Rio de Janeiro.

San Francisco. Consul General: R. C. Arora, Consulate General of India, 215, Market St. San Francisco. Calif. 94105.

San Marino Republic of Consul General. Gurcharan Singh. Resident in Rome (Indian Embassy)

Stuttgart. Consul General. Dr. R. Kissel, Consulate General of India 7, Stuttgart Cegerloch Waldstr, 5, 7,Stuttgart.

Surinam. Consul General. H.K. Mahajan, Consulate General of India Caltex House, 167 68, Kent St. Sydney N. S. W. 2000.

Vietnam, (Republic of S. Vietnam) Consul General: (Vacant.) Consulate General of India,213 Tu-Do St.Saigon.

Zahidan (Iran) Consul. M. K. Kapur, Consulate of India, Avenue Mehran-130, Zahidan.

TECHNO PRODUCTS OF OUTSTANDING QUALITY

SOAPS: Washing, Milled Toilet and Soap to any specification
SPICE OILS & Oleoresins and Oils of Ginger, Black Pepper,
OLEORESINS: Turmeric, Capsicum etc.
FRUIT PRODUCTS: Sarsaparilla Syrup, Delite Syrup etc.
Tamarind Extract etc.
SPICE POWDERS: Chilli Powder, Turmeric Powder, Sambar Powder, Garlic Powder etc.
KESARAKSHINI: (Antilice Oil)

Manufactured by

TECHNO CHEMICAL INDUSTRIES LTD.

CALICUT-1, KERALA

Gram: "TECHNO"
Telex 084—238
Phone: 2202 & 2287

SIVARAM INDUSTRIES

QUILON-8
KERALA

Manufacturers of:

Nails, Dowels, Panel Pins, Machine Screws, Precision Components, Pressed Parts etc., etc.

Aluminium Rubber Dishes A Speciality

Contact:

Phone: 3246
Grams: "SIVIND"

HEADS OF FOREIGN MISSIONS IN NEW DELHI

(as on 31-12-1974)

Afghanistan. Abdul Rehman Pazhwah, Ambassador.
Algeria. Mohamed Nacer Adjali, Charge d' Affaires a. i.
Arab Republic of Egypt. Zakaria Al-Adly Imam, Ambassador.
Argentina. Mario Alberto Campora, Charge d' Affaires a. i.
Australia. Bruce Alexander Grant, High Commissioner.
Austria. Wolfgang Schallenberg, Ambassador.
Bangladesh. Dr. A. R. Mallick, High Commissioner.
Belgium. Jean Charles Salmon, Ambassador.
Bhutan. Lyonpo Pema Wangchhuck, Representative of Bhutan in India.
Brazil. Roberto Luiz Assumpacao De Araujo, Ambassador.
Britain Sir Michael Walker KCMG, High Commissioner.
Bulgaria. Stoyan Zaimov, Ambassador.
Burma. U Ba Shwe, Ambassador.
Cambodia. Mech Sary, Charge d' Affaires.
Canada. John Pyerson Maybee, High Commissioner.
Chile. Augusto Marambio, Ambassador.
China Ma Mur-ming Charge d' Affaires a. i.
Colombia Fernando Nawas de Brigard, Ambassador
Cuba. Dr. Jose Lopez Sanchez, Ambassador.
Czechoslovakia. Zdenek Trhlik, Ambassador.
Denmark. Henning Halck, Ambassador.
Ecuador. Vicente Crospo Ordozez, Charge d' Affaires a. i.
Ethiopia. Getachew Mekasha, Ambassador.
Federal Republic of Germany. Guenter Delhi, Ambassador.
Finland. Miss. Ritta Oro, Ambassador.
France. Jean Dantal Jurgensen, Ambassador.
German Democratic Republic. Wolfgang Sciriessler, Ambassador.
Ghana. Paul Bokay Duah, High Commissioner.
Greece. Bansil Vitsakis, Ambassador.
Guyana. Rahman B. Gajraj, High Commissioner.
Holy See. Most Rev. Msgr. Joha Gordon, Apostolic Pro-Nuncio.
Hungary. Dr. Frenc Turi, Ambassador.
Indonesia Lt. General Soegih Arto, Ambassador.
Iran. Mohammad Goodrak, Ambassador.
Iraq. Farouk El-Obaidi, Charge d' Affaires.
Ireland. Denis Holmes, Ambassador
Italy. Dr. Amedeo Guillet, Ambassador
Japan. Kinya Nisiki, Ambassador.
Jordan. Wajih Al Kaylani, Ambassador.
Kenya. S. K. Kimale, High Commissioner.
Korea-Democratic People's Republic of. Yu Song Jin, Ambassador.
Korea Republic of. Chan Hvuu Pak, Ambassador.
Kuwait, Essa Abdul Rahman Al Essa Ambassador.
Laos. Phagna Souk Upravan, Ambassador.
Lebanon, Mahmoud Hafez, Ambassador
Malaysia. Tan Sri Haji Abdul Khalid Bin Swang Osman, High Commissioner.
Mauritius. Rabindrah Ghurborrun, High Commissioner
Mexico. Carlos Guitierrez Macias, Ambassador.
Mongolia. Buyantyn Dashtseren, Ambassador.
Morocco Mustapha Abdelhak, Charge d' Afferies a. i.
Nepal. Krishna Bom Malla, Ambassador
Netherlands. Tjark Asucer Meurs, Ambassador.
New Zealand. R. R. Cunninghame, High Commissioner.
Nigeria. Soji Williams, High Commissioner.
Norway. Forbjorn Christiansen, Ambassador
Oman. Sultanate of Ali Mohammed Al Jamali., Ambassador.
Peru. Dr. Rene Hooper Lopez, Ambassador.
Philippines. R. S. Busuego, Ambassador.
Poland. Wicktor Kanceki, Ambassador.
Qatar. Sherida Salad Juolran Alkaabi, Ambassador.
Romania. Petre Tanasie, Ambassador.
Saudi Arabia. Shaikh Yousuf Al-Foza, Ambassador
Singapore. K. N. Byrne, High Commissioner.
Spain. Guillermo Nadal, Ambassador.
Sri Lanka. Justin Siriwardene, High Commissioner
Sudan. Sayed Ali Ahmed Sahloul, Ambassador.
Sweden. Count Axel Lewenhaupt, Ambassador.
Switzerland. Dr. Fritz Real, Ambassador.
Syria. Raslan Allough, Ambassador.
Tanzania. A. D. Haassan, High Commissioner.

Telegrams: 'JILLABANK' Telephone No. 240

THE PALGHAT CO-OPERATIVE CENTRAL BANK LTD.

Head Office: PALGHAT - 1

Branches:

Branch	Phone
Alathur	Phone No. 354
Chittur	Phone No. 361
Mannarghat	Phone No. 84
Ottapalam	Phone No. 312
Menonpara	
Palghat	Phone No. 240
Pattambi	Phone No. 36
Kollengode	Phone No. 51
and Morning & Evening Branch	Palghat-1

A Pioneer in the Co-operative field. Provides Agricultural finance of various types to Primary Societies in the District.

Undertakes financing of Societies for Procurement of Paddy.

Paid-up Share Capital	**Rs.**	**75 lakhs**
Deposits	**Rs.**	**280 lakhs**
Owned funds	**Rs.**	**92 lakhs**
Working Capital exceeds	**Rs.**	**550 lakhs**

SAFE DEPOSIT LOCKERS AVAILABLE AT OUR PALGHAT BRANCH.

Accepts deposits at Interest ranging from 3½% to 14%
S. B. account: Interest at 6%

C. V. RAMACHANDRAN
President

K. V. UNNI NAIR
General Manager

Thailand. Dr. Owart Suthiwart Naruepur, Ambassador.

Trinidad & Tobago. Solomon S. Lutchmen, High Commissioner.

Turkey. Gundogdu Ustun, Ambassador.

Uganda. E. L. Ssendaula, Acting High Commissioner.

USSR. Viktor F. Maltsev, Ambassador.

United Arab Emirates. Mohammed Issa Al-Ali, Ambassador.

USA. William Bart Saksbe, Ambassador.

Uruguay. Alfredo Urioste, Ambassador.

Venezuela. Mrs. Rita M. De Arismendi, Charge d' Affaires.

Vietnam, Democratic Republic of. (North Vietnam). Chu Van Bien, Ambassador.

Yemen (People's Democratic of, Ali. Hussain Mazhal, Charge d' Affaires.

Yugoslavia. Ilija Topaloski, Ambassador.

Zaire Ileka Mboyo, Ambassador.

Monaco. R. Chattaram, Honarary Consul General.

San Marino. Bhai Mohen Singh, Honorary Consul General

Senegal. Babacar Diop, Ambassador.

Vietnam (Republic of (South Vietnam). Vu Van Hiew, Consul-General.

CONSULAR OFFICES

Afghanistan. Consul General: Mohd. Usef Mahrdel 115, Valkeshwar Bombay-6.

Austria. Consul: Mrs. Alice Khan. 3, Cuffe Parade, Bombay 5.

Belgium. Consul General: A. De Schutter, 'Morena' 11, B. Dahamukar Bombay-26.

Consul (Hon.): Sunil Singh Roy, 5/1A, Hungerford St. Calcutta-17.

Consul (Hon.): M. Nevens, 1 E. Spurtank Rd, Madras-11.

Bolivia Hon. Consul General: J K. Gora, 10, National Tower, 13, London St. Calcutta-17.

Brazil. Honorary Consul: J. R Antonio Viegas, 8/6, Alipore Park Calcutta-27.

Burma. Consul General: U Than Maung, 46C/, Chowringhee Rd. Calcutta-16.

Consul (Hon.): J. T. Thadani. 7A Nungambakam High Rd., Madras-34.

Costa Rica Consul General: A. K. Makani Standard Bldg 346, Dr. D. Noroji Rd. Bombay-1.

Czechoslovakia Ag- Consul General: Dr R. Hlavaty, 'Marcopia' 5, Deshmukh Marg, Cumbala Hill, Bombay-26.

Consul General (Vacant), 24B, Park St. Calcutta-16.

Denmark. Hon. Consul-General: H. Holck-Larsen. L & T. House, Narottam Morarjee Mag, B. Estste Bombay-38.

Hon. Consul: Seven Palm, 18-G, Park St. Calcutta-16.

Hon. Consul: P. H. Martensen, 4-5, Club House Rd, Off Mount Rd, Madras 2

Dominican Republic. Consul General Hon. H. H. Ismail, Mistry Court 208, N. Vachha Rd, Bombay-20.

Ecuador. Consul: Kalyan Sen, 13, Camac Street, Calcutta-17. In Charge of Affairs, H. H. Ismail, Mistry Court 208, N, Vachha Road, Bombay-20

El Salvador. Consul: Karanjaksha Banerjee, 12, P K. Tagore St Calcutta-6.

Ethlopia. Hon. Consul-General: Ismail M. Kanga, Crescent Chambers, Tamarind Lane, Bombay-23.

France. Consul General: Rene de Cholseulpraslin, Mercantile Bank Bldg 52, M. Gandhi Rd., Bombay-23.

Consul General: Jacques Butin, 26 Park Mansion, Park St Calcutta-16

Consul General: Gerald Griffon, 2 Rue de la Marine, Pondicherry-1.

Consular Agent: Christian Revel, 7/75, Calvethy Rd. Cochin-2.

German Democratic Republic. Consul General: Kurt Beyer, 122 Ninshaw Vachha Rd, Bombay-20

Consul General: Dr. Joachim Heidrich, 1 Gurusaday Rd. Calcutta-16.

Consul General Herbert Schulze, 1/1 Kodambakkam High Rd, Dungambakkam, Madras-34

Germany (Federal Republic of) Consul General: Dr. Otto Soltmann Ramon House, Rd No. 3, Backbay Reclamation, Bombay-20.

Consul General: Dr. H F. Linsser, 1 Hastings Park Rd ,Alipore, Calcutta-27.

Consul General: E F. Baumann, Mico Bldg. 14, Commander in Chief Road Egmore, Madras-8.

Greece. Consul General: A. N. Mango, Ralli House, 21 Ravelin St. Bombay-1

Consul General: J. K. Gora, 10 National Tower, 13, London St Calcutta-17.

Haiti. Hon. Consul Vacant, No. 2, Bidhan Saranee Calcutta-6.

Consul: Ranbir Sinha, Vellard View, Pedder Rd, Bombay-26.

Honduras Republic. In charge of Consular Affairs A. R H. Ismail, Mistry Court, 208, D. Vachha Rd , Bombay-20.

Iceland. Hon. Consul: D. K. Hirlekar, 38 Western India House, Sir P Mehta Rd, Bombay-1

Indonesia. Consul: A D M. Londong, 17, Altamount Rd., Cumballa Hill Bombay-26.

Hony. Consul: D. K. Nag. Rahkamal Bhavan, 128 Rash Behari Avenue, Calcutta-29

INDUSTRY
for
THE INDUSTRIES

The TCC is Industry for industries. This may seem an exaggeration. Nevertheless it is a fact. Can modern life be imagined without Soap, Rayons, Paper, Vanaspathi, Fertilisers, Aluminium, Petrol, Paint, Synthetic fibres, Leather, Plastics, Perfumes, etc? Chemicals produced in the TCC, form the basis for the manufacture of all these products.

A Pioneer producer of

- CAUSTIC SODA
- SODIUM SULPHIDE
- SODIUM HYDROSULPHITE
- HYDROCHLORIC ACID and

other allied chemicals,

T. C. C.

Serves industries and through them the country and the people.

THE TRAVANCORE - COCHIN CHEMICALS LTD.
UDYOGAMANDAL - 683501, KERALA

FOR RELIABLE
RECONDITIONING SERVICE

For All Sizes and Types of Tyres
Entrust your work to

TYRESOLES
GOA PRIVATE LTD.

Curti - Ponda (Goa)

Grams: 'TYRESOLES' Phone Nos. 1 & 2.

Iran. Consul General: Ali Mohammed Afshar, Baldota Bhavan, 117 Maharshi Karve Rd., Bombay-20.

Iraq. Consul General: Anwar Al Bayati (Ag) 'Panorama' 203 Walkeshwar Rd., Bombay-6.

Israel. Consul: Yehoshu Triger, 50 Pedder Rd., Bombay-26.

Italy. Consul General: Dr. Luigi Durante, 3, Raja Santosh Rd., Alipore Calcutta-27.
Consul General. Dr. Edmondo Anderlini, Vaswani, Mansion D. Vachha Rd., Bombay-20.

Japan. Consul General: T. Hashimote, 12, Pretoria St. Calcutta-26.
Consul General. T. Tsuda, 1, Babasaheb Dahanukar Marg, Bombay-26.
Consul General: Y Matsuoka, 20 Nungumbakkam High Road, Madras-34.

Jordan. Consul: Fakirmohamed K. Mistry, Mistry Court, D. Vachha Rd., Bombay-20.

Kuwait. Consul General: Faisal Essa Yousuf, Vaswani Mansions, D Vachha Rd., Bombay-20.

Liberia. Consul General: A. K. Bonerjee, 186 Sarat Bose Rd., Calcutta-29.

Mauritius. Hon. Consul: A. S. Kably, Corinthian, Near Strand Cinema, Bombay-5.

Monaco. Hon. Consul General: R. Chattaram, D-1, Defence Colony, New Delhi-24.

Nepal. Consul General: Rom Bahadur Thapa, 19, Woodlands, Sterndale Rd., Alipore, Calcutta-27.

Netherlands. Consul General: A. de Wit, 3rd Floor, 'International' 16 Maharshi Karve Rd, Bombay-20.
Ag. Consul General. J. A. Solfers, 'PHilips' House, 7 Justice Chandra Madhab Rd., Calcutta-20.'
Consul: A. Stewart, Chordia Mansion 150/ A-2, Mount, Rd., Madras-2.
Consult. S S. Koder, Princess St. Fort, Cochin-1.

Nicaragua. Hon. Consul: J K. Rege, Hon. Vice Consul: C. J. Rege, 4 Prem Court, J. Tata Rd, Bombay-20.

Norway. Consul General: Carsten Gylseth, Nowroji Mansion, 31 Wodehouse Rd., Bombay-23.
Consul: Sven Palm, 18-G, Park St. Calcutta.16.
Consul: P. J. Weavers, Harrissons & Crossfield Ltd., P. Box 502, Cochin-3.
Consul. C. D. Gopinath, Post Box No. 42, Madras-1

Panama, Consul. Matias Cerrud Sucre Flat No. 5 D, 'Ananta' Dr. Rajabaly Patel Rd., Bombay-26.

Peru. In charge of the Consulate General. J. R. Antonio Viegas, 8/6 Alipore Rd., Calcutta-27.
In charge of Consular Affairs in New Delhi and Bombay: Hectar Cabada-Barrios.
Peruvan Embassy, D-290, Defence Colony, New Delhi-24.

Philippines. Hon. Consul General: K. R Patel, 10 Lall Bazar St. Calcutta-1.

Poland. Consul: J. Dylewski Manavi Apartments, 36, Ridge Rd., Malabar Hill, Bombay-6

San Marino. Consul General Hon: Gr. Uff. Bhai Mohan Singh. 15-A, Aurangzeb Rd., New Delhi-11.

Spain. Vice Consul, Napoleon Fernandc. 'Occana' 153, Marine Drive Bombay-20.
Vice Consul: Pritindra Nath Ray Chowdury, 10 Old Post Office St Calcutta-1.
Vice Consul: George P. J. Lobo. 'Lawdale' 5, Nimmo Rd. San Thome, Mylapore, Madras-4.

Sudan. Consul General: Yousif M. Abdalla, Flat No. 5, Mistry Court D Vachha Rd., Bombay-20.

Sweden. Consul General: Akbar Hydari, Indian Mercantile Chambers, Nicol Rd., B. Estate, Bombay-38.
Consul: Sven Adolf Palm, 18 Park St. Calcutta-16.
Consul: G. Rundberg. 71, First Main Rd., Raja Annamalaipuram, Madras-28

Switzerland. Consul General: J. Etter, Manek Mahal, 90 Veer Nariman Rd Bombay-20.

Syria. Consul General, Sobhi Elejel. Cambatta Bldg., 3rd Floor, J. Tata Rd., Bombay-20.

Thailand. Ag. Consul General: Young-yudh Indaraprasirt, 18-B Mandeville Gardens, Ballygunge, Calcutta-19.

Turkey. Hon. Consul General: Rahim Karim Mistry, 208, D. Vachha Rd., Bombay-20.
Hon. Consul General: M A. A. Kashani. 'Nilhat House' 11, R. N. Mukherjee Rd., Calcutta-1.
Hon. Consul-General: Mrs. N, D. Mustafa Bilgen. 115 Lloyds Rd., Cathedral P. O. Madras-6.

United States of America. Consul General: David M. Bane 'Lincoln House' 78, B. Desai Rd., Bombay-26.
Consul General: John Eaves Jr., Mount Road, Madras-6.

A KEY TO A NEW AND AFFLUENT LIFE

KERALA STATE LOTTERIES

⁂

For A Brighter Tomorrow

Buy A Ticket Today

A prize is guaranteed

in every 1000 Tickets

⁂

Director:

KERALA STATE LOTTERIES

TRIVANDRUM, KERALA.
695001

Upper Volta. Consul General: P. K. Bonerjee, 186 Sarat Bose Rd, Calcutta 26.

USSR. Consul General. A. K. Yakovlev 'Palm Beach' 42, L. Jagmohandas Marg, Bombay-6.

Consul General: A. K. Yezhov, 31 Shakespeare Sarani, Culcutta-16.

Consul General: A. I. Kharchenko, 3rd Left St. Rly. Service Commission Road, Madras-6.

Viet Nam Republic of. Consul General: Nguyen Huy Dau, B-51 Greater Kailash 1, New Delhi-48.

Yemen People's Republic of. Consul: Mohamed Abdulla Mohammed Almas 22, Hassan Mahal, Cuffe Parade, Bombay-5.

Yugoslavia Federal Socialist Republic of Consul General Aleksander Stanic. 120/4 Vaswani Mansion D Wachha Rd., Bombay-20.

Consul General (Vacant.) 6, Ballygunge Park Rd., Calcutta-19.

FOREIGN TRADE COMMISSIONS IN INDIA

Australia. E. B. Dillon, Commercial Counsellor & Trade Commr. 1/50 G. Shantipath Chanakyapuri, New Delhi-21.

K. Sarup, Marketing Officer, Australian Deputy High Commission, 9th Floor, Express Towers, Nariman Point, Bombay 21.

P C. Narayanan, Marketing Officer. Australian Dy. High Commission, Brooke House, 9, Shakespeare Sarani, Calcatta-16.

Austria. Austrian Trade Commr. in India. Dr. G. Diezlnger, 12-A, Ratendone R., New Delhi-3. Austrian Trade Commr. in Bombay, Dr. W. Larcher, The Beacon, Foreshore Rd. Bombay-21.

Britain O. G. Forster, M V. O. Counsellor (Economic and Commercial), British High Commission, Shantipath, Chanakyapuri, New Delhi-21. A. C. Baker, First Secretary (Commercial) Dy. High Commission, 1, Ho Chi Sarani, Calcutta-16. H. McBrinn, Second Secretary (Commercial), Dy. High Commission, Mercantile Bank Bldg. M. Gandhi Rd., Bombay-23.

J. H. Gilligan, First Secretary (Commercial), Dy. High Commission 150A, Mount Rd, Madras-2.

Bulgaria. Commercial Counsellor. 50 Golf Links Area, New Delhi-3. Trade Commr. at Bombay, 11, Peacock Palace, 69 Bhulabhai Desai Rd. Bombay-26. Trade Commr. at Calcutta. 6A, Middleton St. Calcutta-16.

Canada. Counsellor (Development and Commercial) Canadian High Commission, Shantipath, Chanakyapuri, New Delhi-21.

Czechoslovakia. Economic and Commercial Counsellor and Trade Representative 50-M, Niti Mrg. Chanakyapuri, New Delhi-21. Trade Commr. Kasturi Bldgs, Jamshedji Tata, Calcutta-16. Trade Commr. 1/J, Nungambakam High Road, Madras-34.

Denmark. Trade Commission, Pallonji Mansion, New Cuffe Parade Bombay-5.

France. Commercial Counsellor to the French Embassy, 130, Jor Bagh New Delhi-3, Trade Commr. 'Beacon', Foreshore Rd., Bombay-21 Trade Commr. 13, Park Mansions, Park St. Calcutta-16.

Hungary. Commercial Counsellor and Trade Representative. Dr. J. Markus, 18, Gold Links Area, New Delhi-3. Trade Commr. G. Czigany, 11A, Vodehouse, Rd., Bombay-23. Trade Commr Gyula Pozsgai, 6/2 Gurssady Rd. Calcutta-19.

Italy. Trade Commr. for Italy. G. Zoldester Nirmal, 21st Flr. Nariman Point, Bombay-21.

Romania. Trade Representation of Socialist Republic of Romania in India. 17, Kautilya Mrg. New Delhi-21. Steelcrete House, Dinshaw Vachha Rd. Bombay-20. Nilhat House, 11, Rajendra Nath Mukherjee Rd., Calcutta-1. 27 Khader Nawaz Khan Rd., Madras-6.

Sri Lanka. Trade Commr. Sri Lanka House, Bruce St. Bombay-23.

USSR. Trade Representation of USSR in India. Plots Nos 6 and 7 Block 50E, Nyaya Marg, Chanakyapuri, New Delhi-1. 1. Bishop Lefroy Rd., Large Bldg.) Calcutta:20; 'Avantika' 46 G. Deshmukh Mrg. Bombay-26. 50-A, St. Mary's Rd, Alwarpet, Madras-11. Showrooms of the USSR Machinery and Equipments: Vasundara House Bhulabhai Desai Rd., Bombay-26 and at Calcutta at the above address.

Yugoslavia. Trade Commr. Brenko Radovic. Vaswani Mansion D. Vachha Rd, Bombay 20.

Telegram: 'PLANTCORP' Phones-8301 & 8302 (9 Connections)

THE PLANTATION CORPORATION OF KERALA LTD.

(A Government of Kerala Undertaking)

POST BOX NO. 12 KOTTAYAM-4, KERALA

AREA OF PLANTATIONS

RUBBER

	HECTARES
KODUMON	2730
KALADY	3401
PERAMBRA	685
THANNITHODE	200

OIL PALM AT ANCHAL

	HECTARES
PROPOSED	3,000
PLANTED	550

Factories at: KODUMON, VETTILAPPARA, PERAMBRA.

PRODUCERS OF ALL GRADES OF HIGH QUALITY SHEETS, CREPE RUBBER, 60% CONCENTRATED LATEX & CRUMB RUBBER.

GOA

LAND OF BEAUTIFUL BEACHES
HISTORICAL CHURCHES AND TEMPLES
IS ALSO KNOWN FOR

HOTEL MANDOVI

(fully renovated)

Centrally airconditioned
Wall to wall carpets
Private balconies
Telephones and four chanelled music
Hot and cold water
And all other modern luxuries.

Tel: 2286 (5 lines) Gram: MANDOVI, PANJIM

PART IV

SPORTS & GAMES

OLYMPIC GAMES
COMMONWEALTH GAMES
ASIAN GAMES
NATIONAL ATHLETICS
NATIONAL CYCLING CHAMPIONSHIP
BOAT-RACE
CRICKET
HOCKEY
FOOTBALL
TENNIS
BADMINTON
BALL BADMINTON
BASKET BALL
VOLLEY BALL
TABLE TENNIS
BILLIARDS AND SNOOKER
CHESS AND BRIDGE
BOXING

With Best Compliments From:-

EMCO GOA PRIVATE LIMITED

STATION ROAD
P. O. Box No. 54
MARGAO, GOA

Exporters of Iron, Ferruginous, Manganiferrous, and Black Iron Ores.

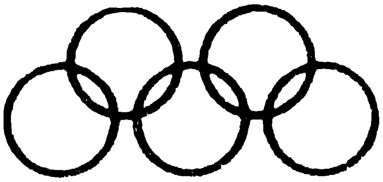
Telephones: 3111 (Five lines)
2193 (Res. of M D.)

Telegrams: EMCO, MARGAO.
Telex : 019-278

ATHLETICS

OLYMPIC GAMES

The Greek Olympiad



Modern Olympics takes its name, form and primary content from the Olympic festival of the ancient Greeks. The Greek Olympiad was essentially a religious festival which according to legend was originally instituted by Heracles, in honour of Zeus, the great Greek god. In all probability, the Olympiads began in the 14th century BC, circa 1370 BC, but the first Olympaid, of which there is some record, was held in 776 BC. Thereafter it ran uninterruptedly every four years, for nealy 12 centuries.

The last of the Greek Olympics was held in 393 AD. When it concluded, Emperor Theodosius issued an edict, banning all future Olympics.

The Olympic competitions of the Greeks were held in the plain of Olympia in Greece and included not only gymnastics, but literature, art, drama, rhetoric and music. As the festival was divine in origin, the Olympic year was regarded as a year of peace and goodwill. During this time the Greek City States, who frequently fought one another declared a general truce. The Greek Olympics thus stood for two things (1) high excellence in body, mind and spirit and (2) peace and goodwill among all people.

The earliest Olympiad lasted only one day and consisted of only one event, a race of one length of the stadium (about 186 yards) The 14th Olympiad introduced a race of 2 lengths, the 18th a five event Pentathlon and the 23rd wrestling. The later Olympiads lasted 5 days and included many events. Two additional days were reserved for religious ceremonies.

Each Olympic game started with the Olympic oath taken before the statue of Zeus at Olympia. The closing ceremony featured prayers of thanks to Zeus. The winner of any event was given a branch from the palm tree, and a wreath made from the wild olives was put on his head.

In course of time, the Olympic Games degenerated. Bribery, corruption and dishonesty in awarding prizes set in. This created discords and scandals. It is said that it was the degeneration of the Olympic Games that prompted Emperor Theodosius to stop the games in AD 393.

Modern Olympics

Modern Olympics, like the Greek Olympics is held once in every four years, but unlike the Greek Olympiad remains confined to tests of physical excellence, namely sports and games

Marathon Race. The crowning event of modern Olympics is the Marathon race, a long distance run of 42.195 km (26 miles. 385 yds)*. It is at once a test of skill and endurance This item celebrates the historic victory of the Athenian army over the mighty Persians, at Marathon in 490 BC The length is the exact distance from the battle field of Marathon to the market place at old Athens. The first Marathon runner was an Athenian, Pheidippides, who carried the news of the Greek victory in a non-stop run from Marathon to Athens He is said to have collapsed and died in the market place, after having gasped out the news.

The Olympic Ideal. The underlying idea of the Olympics is that it is the the chase that counts, not the prize As Baron Pierre de Coubertin put it, "The important thing in the Olympic Games is not winning but taking part. The essential thing in life is not conquering but fighting well".

The Olympic Symbol. The rings or circles which form the Olympic symbol, represent the five major continents of the world. The rings are linked together to denote the sporting friendship of the peoples of the earth, whatever their creed or country. The colours are chosen because at least one of them (blue, yellow, black, green and red) appears in the flag of every nation of the world.

---

* This is the exact official distance, but it was sometimes increased and sometimes reduced to suit the conditions in the host countries.

Gram:- SNEHALAYA

Phone: 32974
33395
32000

BHARAT RETREADING CO.,

(RETREADERS AND NEW TYRE DEALERS)

216-D. Dr. Nanjappa Road
COIMBATORE-641018
TAMIL NADU

SERVICE IS OUR MOTTO

Specialists in:-

Guaranteed Tyre Retreading of all Trucks, Jeep, Cars, Scooter and Motor Cycle Tyres

Factory: 200 G. Jail Road, Coimbatore - 18

Phone Nos: 298, 299 (Ext. 9 Lines)
& 874
Telex No: 019-204/268
A/B : THAKKER VG-204/268

Telegram 'THAKKER'

HIRALAL & COMPANY

'THAKKER HOUSE'
Post Box No. 8
(VASCO DA GAMA (GOA-INDIA)

Serving Ship's Owners (LINERS and TRAMPS) for over 35 years
Also Shipping, Forwarding and Clearing Agents
at MARMAGOA HARBOUR (GOA-INDIA)

ALSO REPRESENTED AT ALL OTHER INDIAN PORTS

MEMBERS OF THE BALTIC AND INTERNATIONAL MARITIME CONFERENCE
and
CORRESPONDENTS TO:-
LEADING PROTECTING AND INDEMNITY CLUBS FOR GOA

ASSOCIATES:-

THAKKERS TRAVEL SERVICE

General Sales Agents in Goa, for KLM ROYAL DUTCH AIRLINES and GARUDA INDONESIAN AIRWAYS

'THAKKER HOUSE'
Post Box No. 8

VASCO DA GAMA
(GOA-INDIA)

Phone No: 861
Telex No: 019-204/268
A/B : THAKKER VG-204/268

Telegrams: 'THAKKERSERV'

The Olympic Flag which appeared at the Olympic competition for the first time at Antwerp in 1920, has a white background with no border. In the centre it has five interlaced rings or circles (three above and two below) whose colours are blue. yellow, black, green and red. The blue ring is high on the left.

The Olympic Motto. The words.' *Citius, Altius, Fortius'*, which frequently appear under the circles mean 'swifter, higher, stronger' (indicative of the competing athletes endeavour to run faster, jump higher, and throw more strongly.)

OLYMPIC HEROES

Modern Olympics were first organised by Baron Pierre de Coubertin, a French nobleman (1863-1937). His object was 'to renew those ideals of excellence of body mind and spirit shown in the classic Olympics'. Appropriately enough, the first modern Olympiad was opened in Athens, capital of modern Greece, on April 5,1896, after an interval of 1503 years from the last Greek Olympiad. About 300 competitors from 13 countries participated. All the prizes went to the visiting teams except the last - the Marathon race. This event, run along the same course that Pheidippides is said to have run, was won by Spyros Louis, a Greek Post Office messenger. The Athens meet inaugurated a new era of sporting camaraderie among the nations of the world.

The next two Olympiads were held in Paris (1900) and in St. Louis, USA (1904). Both these Olympiads were sorry affairs. The Paris Olympiad was mixed up with the Exhibition then going on in Paris. Nobody paid any special attention to the Games. The St. Louis meet had the lowest international participation and was badly managed. The Marathon winner of this Olympiad, finally confessed that he rode in a motor car half the way.

In 1908, the Olympiad was held in London, with 21 nations and 901 competitors participating.

In the 1920 Olympics at Antwerp, the Olympic flag and the Olympic oath were adopted. In 1924 at Paris, Paavo Nurmi (Flying Finn) gathered 5 gold medals, all in long distance running. Johnny Weismuller, the American won 3 gold medals for swimming. Weismuller, later distinguished himself as an actor in Holly-wood. He played Tarzan.

In 1928 at Amsterdam, India made its debut in world hockey and won the gold medal without conceding a single goal. In 1936, the ceremonial relay procession of the Olympic torch from the ancient stadium at Olympia in Greece was inaugurated at Berlin. At Berlin, the American Negro,Jesse Owens made history, winning four golds and setting up 4 new records.

In the 1948 Olympics at Wembley in London, Fanny Blankers Koen of Netherlands, the mother of two children, stole the thunder, winning four golds. The Russians re-entered the Olympics in 1952 at Helsinki after an absence of 40 years. The Helsinki Olympics was the show of the Zatopeks. Emil Zatopek of Czechoslovakia won golds in 5,000 metres, 10,000 metres and the Marathon. His wife, Dana Zatopek won the gold for Javelin Throw creating a record. At Melbourne, in 1956 the Russian Vladimir Kuts, distinguished himself with a great 5,000 metres and 10,000 metres, double victory. In 1960, at Rome, the Africans joined in. Abebe Bikila of Ethiopia won the Marathon barefoot in record time.

The Tokyo Olympics in 1960, saw Olympic records fall down like nine pins. At Tokyo, Bikila bettered his own Marathon record; this time in shoes. He is the only man in Olympic history to win the Marathon twice. Another hero of Tokyo, was Dawn Fraser of Australia, who won the 100 metres free-style swimming for the third time in succession, at the Olympics. Seventy-seven Olympic records and 15 world records were smashed at Tokyo.

In 1968 in Mexico, the Africans made a definite impact. Kip Keino and two fellow Kenyans won three golds. Mamo Waldo of Ethiopia, captured the Marathon gold. But the American Negro, Bob Beamon's leap of the century, shadowed all other events in Mexico. He established a stunning record of 29 ft 2.5 inches for Long Jump-nearly 2 ft. more than the world's highest record until then.

In 1972 at Munich, Mark Spitz, the 22 year old American led the show. Mark has left an indelible mark on Olympic history by winning seven gold medals in Swimming. Shane Gould, the 15 year old school girl from Australia won three golds in swimming—200 Metres Individual Medley, 200 and 400 Metres Free-Style—creating a new Olympic record in each event. But she lost to American girls in two events, securing a silver and a bronze, which prompted the happy pun 'All that glitters is not go(u)ld'. Valery Borzoy (23) of Russia, proved himself the master of the track, winning a double in 100 metres and 200 metres. John Akii-Bua of Uganda, headed home in 400 metres Hurdles, to give Uganda her first gold in Olympics.

Telephone : 2908 5415

Telegrams: COBANK

THE KERALA STATE CO-OPERATIVE BANK LTD.

(A Scheduled Bank)

H. O. State Co-operative Bank Buildings Overbridge Junction TRIVANDRUM-I

Regional Office : Resmi, Chalappuram, Calicut-2
City Branches : 1) Statue Junction, Trivandrum-I
2) Peroorkada, Trivandrum-5
3) Medical College Jn. Trivandrum

- THE Bank extends production and Development credit to agriculturists for their farm operations and agro-based subsidiary occupations and working capital to small scale industries, Consumer Stores, Marketing and Processing units in the Co-operative Sector.
- THE Bank provides normal Banking facilities and promotes Savings by opening various types of DEPOSITS ACCOUNTS at lucrative rates of interest.
- THE Bank also has SAFE DEPOSIT LOCKERS for hire at a very nominal rent.

PROGRESS OF THE BANK AT A GLANCE

(Rs. in lakhs)

	30-6-72	30-6-73	30-6-74
Share capital and Reserves	296	356	405
Loans & Advances outstanding	2209	2401	2456
Working Capital	2600	2867	2942
Deposits	577	683	869

For further particulars please write to us or call on us.

E. Chandrasekharan Nair, B. Sc. B. L. *President.*
C. S. Subramanian M. Com., CAIIB *Secretary.*

Dates and Sites of Olympic Games

1. Summer Olympics

Year			*Date*	*No. Countries*	*No. Competitors*
I	1896	Athens, Greece	Apr. 6—15	13	285
II	1900	Paris,France	May 20—Sep. 20	16	1,505
III	1904	St. Louis, Mo., USA	July 1—Oct. 15	7	1,609
IV	1908	London, England	Apr. 27—Oct. 27	21	901
V	1912	Stockholm, Sweden	May 5—July 19	22	2,666
VI	1916	Berlin, Germany	Cancelled because of World War I		
VII	1920	Antwerp, Belgium	July 22—Sept. 5	26	2,741
VIII	1924	Paris, France	May 4—July 27	45	3,385
IX	1928	Amsterdam, Holland	May 17—Aug. 12	46	3,905
X	1932	Los Angels, Calif., USA	July 30—Augt 14	39	2,403
XI	1936	Berlin, Germany	Aug. 1—16	51	4,069
XII	1940	Helsinki, Finland	Cancelled because of World War II		
XIII	1944	Unawarded	Cancelled because of World War II		
XIV	1948	London, England	July 29—Aug. 14	59	6;005
XV	1952	Helsinki, Finland	July 18—Aug. 3	69	5,867
XVI	1956	Melbourne, Australia	Nov. 22—Dec. 8	73	5,050
XVII	1960	Rome, Italy	Aug. 25—Sep. 11	84	5,393
XVIII	1964	Tokyo, Japan	Oct. 10—24	94	7,500
XIX	1968	Mexico City, Mexico	Oct. 12—27	119	7,230
XX	1972	Munich, W. Germany	Aug. 26—Sep. 11	120	10,000

2 Winter Olympics

Winter Olympics were inaugurated in 1924

Dates and Sites

I	Chamonix, France	1924 Jan-Feb.
II	St. Moritz, Switzerland	1928 Feb.
III	Lake Placid, New York	1932 Feb.
IV	Garmisch-Partenkirchen, Germany	1936 Feb.
V	St. Moritz, Switzerland	1948 Jan-Feb.
VI	Oslo, Norway	1952 Feb.
VII	Cortena d' Ampezzo, Italy	1956 Jan Feb.
VIII	Squaw Valley, California	1964 Feb.
IX	Innsbruck, Austria	1964 Jan-Feb.
X	Grenoble and Chamonix, France	1968 Feb.
XI	Sapporo, Japan	1972 Feb.

MUNICH OLYMPICS 1972

The Olympic Games at Munich were inaugurated by Gustav Heinmann, President of the Federal Republic of Germany on 26 Aug. 1972.

Counted from the Greek Olympics, Munich was the 314th Olympiad on record. It was the 20th Olympiad of modern times. Munich will always be remembered in Olympic history for its blood bath on Sept. 6, 1972. Eight Arab terrorists walking into the Olympic quarters, in the early hours of the morning, shot 3 Israelis dead and took 6 as prisoners and hostages. The German police intervened. The Arabs killed all the Israeli hostages. The German police shot down five Arabs out of eight, losing one of their own men. In all, 15 persons died The Olympic Games were suspended for a day. The games concluded on Sept. 11, 1972.

Medals Tally

The Soviet Union replaced USA as the world's greatest sporting country by collecting 50 golds at the Munich Olympics—a total surpassed only twice before by the USA with 70 in 1904 and Britain with 56 in 1908.

STATE BANK

OF

MYSORE

At your Service

for

all your

BANKING NEEDS

SREEVATSA ENGINEERING & TRADING CO.,

METTUPALAYAM ROAD

COIMBATORE-641011

Phone: 32184 **Grams: 'SRIVATSACO'**

Dealers in:

Galvanised & Black Pipes and Pipe fittings

DISTRIBUTORS FOR TAMILNADU & KERALA STATES:

"CALAMA" Plunger Submersible Pumpsets.

Table 330

Medals Tally

	Gold	*Silver*	*Bronze*
Russia	50	27	22
United States	33	30	31
E. Germany	20	23	23
Japan	13	8	8
W. Germany	12	11	16
Australia	8	7	2
Poland	7	5	8
Hungary	6	13	16
Bulgaria	6	10	5
Italy	5	3	9
Sweden	4	6	6
Britain	4	5	9
Romania	3	6	7
Finland	3	1	4
Cuba	3	1	4
Netherlands	3	1	1
France	2	4	7
Czechoslovakia	2	4	2
Kenya	2	3	4
Yugoslavia	2	1	4
Norway	2	1	1
N. Korea	1	1	3
New Zealand	1	1	1
Uganda	1	1	0
Denmark	1	0	0
Switzerland	0	3	0
Canada	0	2	3
Iran	0	2	1
Belgium	0	2	1
Greece	0	2	0
Austria	0	1	2
Colombia	0	1	2
Mexico	0	1	0
Pakistan	0	1	0
Tunisia	0	1	0
Argentina	0	1	0
S. Korea	0	1	0
Lebanon	0	1	0
Turkey	0	1	0
Mongolia	0	2	0
Brazil	0	0	2
Ethiopia	0	0	2
Spain	0	0	2
Jamaica	0	0	1
India	0	0	1
Niger	0	0	1
Ghana	0	0	1
Nigeria	0	0	1

Note: One gold medal was subtracted from the US and given to Australia after the IOC disqualified the American swimmer, Rick Demont, for taking a banned drug and awarded the medal to Brad Cooper. Cooper's Silver was awarded to the American, Steve Genter and Genter's Bronze to his compatriot, Tom Mc Breen.

Results

The following are the names and placings of the medal winners in the 20th Olympic Games.

1st (Gold) 2nd (Silver) 3rd (Bronze)

ARCHERY

Men's

John Williams (US) 2,528 points. 2. Gunnar Jarvil (Sweden) 3. Kyoesti Laasonen (Finland).

Women's

Doreen Wilber (US) 2,424 points. 2. Irena Szydlowska (Poland) 3. Emma Gaptchenko (USSR).

Basketball

Team championship. 1. USSR 2. USA 3. Cuba.

Boxing

Light Flyweight. 1. Gyoergy Gedo (Hungary) (2) U Gill Gim (North Korea) 3. Ralph Evans (Britain) 4. Enrique Rodriquez (Spain).

Flyweight. 1. Gheorghi Kostadinov (Bulgaria) 2. Leo Rwabwogo (Uganda) 3 Douglas Rodriuez (Cuba) 4. Leszek Blazynski (Poland).

Bantamweight. 1. Orlando Martinez (Cuba) 2. Alfonso Zamora (Mexico) 3. George Turpin (Britain) 4. Ricardo Carreras (USA).

Featherweight. 1. Boris Kousnetsov (USSR) 2. Philip Waruinge (Kenya) 3. Clemente Rojas (Colombia) 4. Andras Botos (Hungary).

Lightweight 1. John Szczepanski (Poland) 2. Laszlo Orban (Hungary) 3. Samuel Mbugua, (Kenya) 4. Alfonso Perez, (Colombia)

Light Welterweight 1. Ray Seales (USA) 2 Angel Anghelov, (Bulgaria) 3. Azonimir Vujin (Yugoslavia) 4. Issaka Daborg (Niger).

Welterweight. 1. Emillio Correa (Cuba) 2. Janos Kajdi, (Hungary). 3. Dick Tiger Muranga (Kenya) 4. Jesse Valdez (USA).

Light Middleweight. 1. Dieter Kottysch (West Germany) 2. Wieslaw Rudkowski (Poland), 3. Alan Minter (Britain) 4. Peter Tiepold (East Germany).

Middleweight. 1. Viatcheslav Lemechev (USSR). 2. Reima Virtanen (Finland), 3. Prince Amartey (Ghana) 4. Marvin Johnson (USA).

the unemployed technicians with the co-operative organisational spirit forms–

ENCOS KARMAKSHETRAS ! ! !

the stored - unexcavated - energy of the so called unwanted young technicians of kerala being utilised for constructive purposes in

ENCOS ! ! !

the growth of a concept

with 163 employees and Rs. 016 lakhs as share
capital in 1969..., we now have more than 1700
members and share capital of Rs. 94.49
lakhs as on date ! ! !
THAT'S GROWTH FOR YOU ! ! !

we produce 120 cc atalanta scooters,
developing 6 hp at 5000 rpm,
at encos scooter division, trivandrum;
we produce isi approved switches and
switch gears, at menco electricals olavakot;
we make electronic equipments, at encotronix olavakot;
we make cylinder block castings
at our foundry unit, at ottappalam;
we manufacture stainless steel utensils and
our well equipped auto shop repairs your vehicles,
at west caost electroplating cochin; and
we are going to give you lambretta scooters,
mechanised toys, and also
prefabricated houses··················!

Grams: ENCOS

not a bad start we hope!

the kerala state engineering technicians (workshop) industrial co-operative society ltd. s. ind. (st). no. 1. trivandrum head office.

Phone: 4561

Phones & Grams:

4996 5298 4952	'ATALANTA'	ENCOS SCOOTER DN. TRIVANDRUM 18.
345	'ENCOS'	FOUNDRY & GL. ENGG. WORKSHOP, OTTAPPALAM
35157	'ENCOS'	WEST COAST ELECTROPLATING UNIT, COCHIN-12
8241	'MENCOLETRI'	MENCO ELECTRICALS & ENCOTRONIX, Palghat.

ght Heavyweight. 1. Mate Parlov (Yugoslavia) 2. Gilberto Carrillo (Cuba) 3. Issac Ikhouria (Nigeria) 4. Janusz Gortat (Poland).

Heavyweight. 1. Teofilo Stevenson (Cuba) 2. Ion Alexe (Rumania) 3. Hasse Thomsen, (Sweden) 4. Peter Hussing (West Germany)

Men's Canoeing

Canadian Two-Man Slalom. 1. Walter Hofmann, Hans Otto Schumacher, (East Germany 310.68 points. 2. West Germany. 3. France.

Kayak Slalom. 1. Siegbert Horn, (East Germany), 268.56 pts. 2. Norbert Sattler (Austria) 3. Harold Gimpel (East Germany).

Canadian Slalom. 1. Reinhard Eiben (East Germany). 315·84 pts. 2. Reinhold Kauder (West Germany) 3. Jamie McEwan (USA).

Kayak Singles. 1. Aleksander Shaparenko (USSR) 3:48.06 2. Rolf Petersen (Sweden) 3. Geza Csapo, (Hungary).

Canadian Singles. 1. Ivan Patzaichin (Rumania) 4:08 94 2 Tamas Wichmann, (Hungary). 3. Netlef Lewe (W. Germany).

Kayak Pairs. 1. Nikolai Gorbachev, Vicktor Kratassuk, (USSR) 3:31.23 2. Jozsef Deme, Janor Ratkai (Hungary). 3. Wladysaw Szuskiewicz, Rafael Piszcc (Poland).

Canadian Pairs. 1 Vladas Chessyunas, Yuri Lobanoc (USSR) 3:52 60 2. Ivan Patzaichin, Serghei Covaliov (Rumania) 3. Fedia Damianov, Ivan Boortchine (Bulgaria).

Kayak Fours. 1. USSR 3:14.02 2. Rumania. 3. Norway.

Women's Canoeing

Single Kayak Slalom 1 Angelika Bahmann, (E. Germany) 364.50 pts. 2. Gisela Grothaus (W. Germany) 3. Magdalena Wunderlich (W. Germany).

Kayak Singles. 1. Yulla Ryabchinskaya (USSR) 2:03.17 2. Melike Jaaples (Netherlands), 3. Anna Pfeffer (Hungary).

Kayak Pairs. 1. Ludmila Pinayeva, Ekaterina Kuryshko (USSR) 1:53.50 2. Ilsa Kaschuve, Petra Grabowsky (E. Germany), 3. Maria Nichiforou, Victoria Dumitru (Rumania).

Cycling

1,000—Metre Time Trial. 1. Niels Fredborg, (Denmark) 1:06.44 2. Danie Clark (Australia) 3. Juergen Schuetze (E. Germany).

Individual Pursuit. 1. Knut Knudsen (Norway) 4:45.74 2. Xaver Kurmann (Switzerland), 3. Hans Lutz, (W. Germany).

Team Pursuit. 1. W. Germany 4:22.2 2. E. Germany 3. Britain.

Tandem. 1. USSR (Vladimir Semenets, Igor Tselovainkov) 2. East Germany (Juergen Goeschke, Werner Otto) (3) Poland.

Road Race. 1. Hennie Kuiper (Netherlands), 4 hrs. 14:48. 2. Kevin Clyde Sefton (Australia) 3. Jaime Huelamo (Spain).

100 Kilometre Time Trial. 1. USSR 2. hrs. 11:17.8 2. Poland 3. Belgium.

Sprint. 1. Daniel Morelon (France). 2. John Michael Nicholson (Australia). 3. Onari Phakadze (USSR).

Equestrian

Individual 3-Day Event. 1. Richard Meade (Britain) 57.73 pts. 2. Alessandro Argenton (Italy) 3 Jan Johnson. (Sweden).

Team 3-Day Event. 1. Britain 95.53 pts. 2. USA 3. W. Germany.

Individual Jumping. 1. Graziano Mancinelli (Italy) 8.00,000 2. Ann Moore (Britain), 3. Neal Shapiro (USA).

Dressage Grand Prix Team. 1. Liselott Lisenhoff (W. Germany) 229 pts. 2. Elena Petrushkova (USSR). 3. Josef Neckermann (W. Germany).

Team Jumping (1) W. Germany 32 pts. (2) USA (3) Italy.

Men's Fencing

Individual Foil. 1 Witold Woyda (Poland) 2. Ienoc Kamuti (Hungary) 3. Christian Noel (France).

Individual Saber. 1. Victor Sidiak (USSR) 2. Peter Maroth (Hungary) 3. Vladim Nazlymov (USSR).

Saber Team. 1. Italy 2. USSR 3. Hungary.

Individual Epee. 1. Csaba Fenyvei (Hungary), 2. Jacques La Degaillerie (France) 3. Gyoezoe Kulsar (Hungary).

Team Foil. 1. Poland 2. USSR 3. France.

Team Epee. 1. Hungary 2. Switzerland 3. USSR.

Women's Fencing

Individual Foil. 1. Antonella Lonzo Regno (Italy) 2. Ildiko Bobis (Hungary) 3. Galius Gorokhova (USSR).

Team Foils. 1 USSR 2. Hungary 3. Rumania.

Field Hockey

Team Championship. (1) W. Germany (2) Pakistan (3) India.

Telephone: 32598 Telegram: "HANDICRAFTS"

THE KERALA STATE HANDICRAFTS APEX CO-OP. SOCIETY LTD.

No. H. 231, ERNAKULAM, COCHIN-16

(HAPCOS)

(Sponsored by Govt. of Kerala)

Dealers in all kinds of Handicrafts Products

SHOW ROOM AT

Handicrafts Emporium No.I & II	Round West,	Cherootty Road
M. G. Road, Cochin-16	Trichur	Calicut-1
(Air Conditioned)		(Air Cool)
Phone : 33063	Phone : 865	Phone : 77284

Phone- 314 Established 1937

BHISHAK RETNA & VAIDYABHOOSHANAM

K. C. NARAYANAN VAIDYAR SONS

ARYA VAIDYA PRAKASINI VAIDYASALA

OTTAPALM - 679101

Please contact us for

Scientific Medical Treatment and Reliable Medicines

Treatment of the EYE-a speciality, along with general treatment

'Trahal Bala Jeevamritam' cures Children's diseases like Chronic Diarrhoea, loss of appetite, no taste for food, anaemia, hands and legs getting thin, etc. It gives energy and brightness to the children.

Manager

Men's Gymnastics

Parallel Bars. 1. Sawao Kato (Japan) 19.475. 2. Shigeru Kasamatsu, (Japan) 3. Eizo Kenmotsu (Japan),

Long Horse. 1. Klaus Koeste (E. Germany) 18.850. 2. Viktor Klimenko (USSR) 3. Nikolai Andrianov (USSR).

All Around 1. Sawao Kato (Japan) 114.650 pts. 2. Eizo Kenmotsu (Japan), 3. Akinori Nakayama (Japan).

Side Horse. 1. Viktor Klimenko (USSR) 19.125 2. Sawao Kato (Japan) 3. Eizo Kenmatsu, (Japan).

Rings. 1. Akinori Nakayama (Japan) 19.350 2. Mikhail Voronin (USSR) 3. Mitsuo Tsukahara, (Japan).

Horizontal Bars 1. Mitsuo Tsukahara (Japan) 19.725 2. Sawao Kato (Japan) 3. Shigeru Kasamatsu (Japan).

Team Competition. 1. Japan 571.25 pts. 2. USSR 3. E. Germany.

Floor Exercises 1. Nikolai Andrianov (USSR) 19.175 pts. 2. Akinori Nakayama (Japan) 3. Shigeru Kasamatsu, (Japan)

Women's Gymnastics

All Around. 1. Luidmila Tourischeva (USSR) 77.025 pts. 2. Karin Janz (E. Germany) 3. Tamara Lazakovitch (USSR).

Floor Exercises 1. Olga Korbut (USSR) 19.575 2.Luidmila Tourischeva (USSR) 3. Tamara Lazakovitch (USSR).

Balance Beam 1. Olga Korbut (USSR) 19.400 2. Tamara Lazakovitch (USSR) 3. Karin Janz (E. Germany).

Uneven Bars. 1. Karin Janz (E. Germany) 19.575 2. Olga Korbut (USSR) 3. Erika Zuchold (E. Germany).

Long Horse. 1. Karin Janz (E. Germany) 19.525. 2 Erika Zuchold (E Germany) 3. Luidmila Tourischeva (USSR).

Team Competition. 1. USSR 380.5 2. E. Germany 3. Hungary.

Handball

Team Championship. 1. Yugoslavia. 2. Czechoslovakia 3. Rumania.

Judo

Lightweight. 1. Takao Kawaguchi (Japan) 2. Bakhaavaa Buidaa (Mongolia). 3. Young Ilk Kim (North Korea) 4. Jean-Jacques Mounier (France).

Welterweight. 1. Toyokazu Nomura (Japan) 2. A. Zajkowski (Poland) 3. D. Hoetgert (E. Germany) 4. A. Novikov (USSR).

Middleweight. 1. Shinobu Sekine (Japan) 2. Seung-Lip Oh (South Korea) 3. Brian Jacks (Britain) 4. Jean-Paul Coche (France).

Light Heavyweight. 1. Shota Chgchoshvilli (USSR) 2. David Starbrook (Britain) 3. Paul Barth (W. Germany) 4. Chiak Ishil (Brazil).

Heavyweight. 1 Willem Ruska (Netherlands) 2. Klaus Glahn (W. Germany) 3 G. Onashvili (USSR) 4. M. Nishimuar (Japan).

Open. 1. Willem Ruska (Netherlands) 2. Vitali Kusnezov (USSR) 3- Angelo Parisi (Britain), 4. Jean-Brondani (France.)

Modern Pentathlon

Team. 1. USSR 15,968 pts. 2. Hungary 3. Finland

Individual. 1. Andras Balczo (Hungary) 5,412 2. Boris Onischenko (USSR) 3. Pavel Lednev (USSR).

Rowing

Coxed Fours. 1. W. Germany, 6:31.85 2. E. Germany 3 Czechoslovakia.

Coxless Pairs. 1 E. Germany 6:53.16 2. Switzerland 3. Netherlands.

Singles scull. 1. Yuri Malishev (USSR) 7:10 12, 2. A. Demiddi (Argentina). 3. W. Gueldenpfenning (E. Germany).

Coxed Pairs. 1. E. Germany. 7:17.25 2 Czechoslovakia 3. Rumania

Coxless Fours. 1. E. Germany 6:24.27 2. New Zealand 3. W. Germany.

Doubles Scull 1. USSR 7:01.77 2. Norway 3. E. Germany.

Eights. 1. New Zealand 6:08.94 2. US. 3. E. Germany,

Shooting

Small Bore Rifle 1. Ho Jun Li (North Korea) 599 pts.* 2. Victor Auer (US) 3. Nicolae Rotaru (Rumania)

Trap. 1. Angelo Scalzone, (Italy) 199 pts*. 2. Michel Carrega (France) 3. Silvano Basagni (Italy).

Small Bore Rifle, 3 Positions. 1. John Writer (US) 1,166 pts. 2. Lanny Bassham (US) 3. Werner Lippoldt (E. Germany).

Rapid Fire Pistol. 1. Jozef Zapedzski (Poland) 585 pts. 2. Ladisav Faita (Czechoslovakia) 3. Viktor Torshin (USSR.)

Moving Target. 1. Lakov Zhelezniak (USSR) 569 pts. 2. Helmut Bellingrodt (Colombia) 3. John Kynock (Britain).

Free Rifle. Lones Wigger (US). 1,115 pts. 2. Boris Melnik (USSR) 3. Laios Pap (Hungary).

Skeet. 1. Konrad Wirnhier (W. Germany) 195 Pts. 2. Yvgeny Petrov (USSR) 3. Michael Buchheim (E. Germany.)

Free Pistol. 1. Ragnar Skanaker (Sweden) 567 pts. 2. Dan Iuga (Rumania) 3. Rudolf Dollinger (Austria)

---

* World Record.

ALLURING 'JAYA', 'RATNA' AND 'SONA' EXCEL

Surplus in foodgrains, Andhra Pradesh is often lauded as the "Rice Bowl" of the South. The State is surplus in the production of sugar-cane, tobacco, oilseeds, chillies etc. The productivity of rice in the State is among the highest in India.

Sustained efforts have been made by the Department of Agriculture in particular to popularise high yielding varieties of rice since 1966-67. With the result, the acreage has been on the increase year after year.

High-yielding varieties like "Jaya", "Sona", "Ratna", "Jagannath" RP-193 etc. have become, of late, very popular. They covered an area of 18.11 lakh hectares (45·27 lakh acres) during 1973-74, as against 9.88 lakh hectares (24·70 lakh acres) during the preceding year. This two-fold increase in acreage is a significant pointer to the success of high-yielding varieties.

The ambitious target for the current year is 20 lakh hectares (50.00 lakh acres).

The rice production in the State touched a new high of 53·52 lakh tonnes in 1973-74, compared to the 42.56 lakh tonnes during the preceding year.

Perhaps, in one respect, the Department of Agriculture deserves all Kudos. Its seed distribution of high-yielding varieties during 1973-74 stood at 10,300 tonnes, claimed to be a record figure among the Southern States.

Let us grow two blades of corn where one grew before.

THE DIRECTOR OF INFORMATION
AND PUBLIC RELATIONS
GOVT. OF ANDHRA PRADESH

Men's Swimming

100-Metre Butterfly. 1. Mark Spitz (US) 0:54.27†† 2. Bruce Robertson, (Canada) 3. Jerry Heidenreich (US)

200-Metre Butterfly. 1. Mark Spitz, (US) 2:00.70†† 2. Gary Hall (US) 3. Robin Backhaus (US)

100-Metre-Backstroke. 1. Roland Matthes, (East Germany) 0:56.58† 2. Mike Stamm (US) 3. John Murphy (US)

100-Metre-Breaststroke. 1. Nobutaka Taguchi, (Japan) 1:04.94 †† 2. Tom Bruce (US) 3. John Hencken (US)

200-Metre Freestyle 1. Mark Spitz (US) 1:52.78†† 2. Steve Genter, (US) 3. Werner Lampe, (W. Germany)

400-Metre Freestyle. 1. Bradford Cooper, (Australia) 4:00 27† 2. Steve Genter (US) 3. Tom McBreen (US)

400-Metre-Freestyle Relay. 1. US 3:26.42†† 2. USSR 3. E. Germany.

800- Metre Freestyle Relay 1. US 7:38.78†† 2. W. Germany 3. USSR

400-Metre Individual Medley 1. Gunnar Larsson (Sweden) 4:31.98† 2. Tim McKee (US) 3. Andras Hargity, (Hungary)

200-Metre Breaststroke. 1. John Hencken (US) 2:21.55†† 2. David Wilkie (Britian), 3. Nobutaka Taguchi (Japan)

200-Metre Backstroke. 1. Roland Matthe (E. Germany) 2:02.82†† 2. Mike Stamm (US) 3. Mitch Ivey (US)

200-Metre Individual Medley 1. Gunnar Larsson (Sweden) 2:07.17†† 2. Tim McKee (US) 3. Steven Furniss (US)

100-Metre Freestyle. Mark Spitz (US) 0:51.22†† 2. Jerry Heidenreich (US) 3. Vladimir Bure (USSR).

1500- Metre Freestyle. 1. Mike Burton (US) 52:58†† 2. Graham Windeatt (Australia) 3. Doug Northway (US)

400-Metre Medley Relay. 1. (US) 3:48.16†† 2. E. Germany 3. Canada.

Women's Swimming

100-Metre Freestyle. 1. Sandra Neilson, (US) 0:58.59† 2. Shirley Babashoff (US) 3. Shane Gould (Australia).

200-Metre Freestyle. 1. Shane Gould (Australia) 2:03.56†† 2. Shirley Babashoff (US) 3. Keena Rothhammer (US)

400-Metre Freestyle. 1. Shane Gould (Australia) 4:19.04†† 2. Novella Caligaris, (Italy) 3. Gudrun Wagner (East Germany).

100-Metre Butterfly. 1. Mayumi Ayki (Japan) 1:03.34†† 2 Roswitha Bejer (E. Germany) 3. Andrea Gyarmati (Hungary).

200-Metre Breaststroke. 1 Beverly Whitfield (Australia), 2:41.71† 2. Dana Schoenfield (US) 3. Galena Stepanova (USSR)

---

† Olympic Record.

†† World Record.

COMMONWEALTH GAMES

(10th Meet)

Christchurch, New Zealand—Jan. 1974

The Commonwealth Games is the Sports Festival of the Commonwealth countries. Like the Olympics, they are held once in four years but only in between the Olympic years. The first Commonwealth and Empire games were held is 1930 at *Hamilton*, Canada. Since 1930, the games were successively held at *London, Sydney, Auckland, Vancouver, Cardiff, Perth, Kingston and Edinburgh*. The 1974 games were held at Christchurch, New Zealand.

The Duke of Edinburgh opened the Commonwealth Games on Jan. 25,1974. Some 2000 competitors from over 38 countries took part in the Games.

(1) Medals Tally

In the final medals tally for the games, the Australians took the top spot with 29 gold medals. But England, with a rush of gold in the last two days, finished only one behind on 28. Canada, New Zealand, Kenya and India occupied the top six places.

	G	S	B
Australia	29	28	25
England	28	31	21
Canada	25	19	18
N. Zealand	9	8	18
Kenya	7	2	8
India	4	8	3
Scotland	3	5	11
Nigeria	3	3	4
N Ireland	3	1	2
Uganda	2	4	3
Jamaica	2	1	—
Wales	1	5	4
Ghana	1	3	3
Zambia	1	1	1
Malaysia	1	—	3
Tanzania	1	—	1
St. Vincent	1	—	—
Trinidad & Tobago	—	1	1
W. Samoa	—	1	1
Lesotho	—	—	1
Singapore	—	—	1
Swaziland	—	—	1

THE STATE INSTITUTE OF LANGUAGES, KERALA

Nalanda, Trivandrum-3

The main objective of the State Institute of Languages, Kerala is to develop Malayalam as an effective medium for disseminating modern knowledge. The institute has formulated a scheme to publish 1200 University-level books in various subjects and this scheme is being implemented expeditiously. Already more than 360 books have been published which include all Pre-degree text books in Physics, Chemistry, Mathematics, Biology, History, Economics, Commerce, Logic, Civics, Social Studies, Psychology and Home Science. This is in addition to 12 Glossaries, text books for Junior Technical Schools and for a few Diploma courses. Books for Graduate and Post-graduate courses are also under way and several. of them already come out.

The Institute has published 31 volumes on scientific agriculture and animal husbandry with a view to convey the latest agricultural information to our farmers.

VIJNANA KAIRALI, the Institute's monthly journal now in its sixth year, publishes scholarly articles of abiding interest in all branches of science and humanities (Aunual subscription Rs. 10, single copy Re. 1).

The Institute's publications have won approbation for their high quality. They are on the book stands of all leading book-sellers in Kerala.

Write for the catalogue to:

The Director

THE STATE INSTITUTE OF LANGUAGES, KERALA
Nalanda, Trivandrum- 3

KERALA CO-OPERATIVE CENTRAL LAND MORTGAGE BANK LTD.

TRIVANDRUM

P. B. No. 56

Regional Offices at: Trivandrum, Ernakulam and Cannanore.

The Bank is the Apex Bank to provide long term credit to the Agriculturists. Long term loans under special schemes with the assistance of the Agricultural Refinance Corporation are also advanced for cultivation of Coffee, Cardamom, for planting coconut and arecanut etc. for minor irrigation etc.

The Bank also accepts Fixed Deposits at 8.25% interest for one year.

Affiliated Primary Land Mortgage Banks in Kerala State: 29

N. RAMAKRISHNAN, IAS
Managing Director.

C. S. NEELAKANTAN NAIR
President.

ii SCORE-BOARD

Athletics

Men

100m D. Quarrie (Jamaica) 10.4:2. J. Mwebi (Kenya) 10. 5: 3.0. Karikari (Ghana) 10.5.

200m. D. Quarrie (Jamaica) 20. 7: 2. G. Daniels (Ghana) 21 0;3. B. Smith (N. Zealand) 21.3.

400M. C. Asati (Kenya) 46.0;2 S. Ayoo (Uganda) 46. 1; 3. C. Kamanya (Tanzania) 46. 2.

110 m. Hurdles. F. Kimaiya (Kenya) 13. 7; 2. B. Price (Wales) 13. 8; 3 M. Binnington (Australia) 13. 9.

4x100m. Relay: Australia 39. 3; 2. Ghana 39. 6; 3. Nigeria 39.7.

800m. J Kipkurgat (Kenya) 1:43;9;2. M. Boit (Kenya) 1: 44. 4; 3. J. Walker (N. Zealand) 1: 44.9.

1,500m F. Bayi (Tanzania) 3: 32. 2 (World record); 2. J. Walker (N, Zealand) 3: 32. 5; 3. B Jipcho (Kenya) 3: 33. 2.

5,000m. B: Jipcho (Kenya) 13: 14. 4; 2. B. Foster (England)13:14.6;3. D. Black (England) 13: 23. 6.

10,000m: D. Taylor (N. Zealand) 27: 46. 4; 2. D.Black (Gibraltar) 27:48. 6; 3. R. Juna (Kenya) 27: 57. 0.

3,000m. Steeplechase: B. Jipcho (Kenya) 8:20.8; 2. J Davies (Wales) 8: 24 0; 3. E. Mogaka (Kenya) 8:28 6. (Davies was disqualified, then reinstated by Jury of Appeal).

4x400m. Relay: Kenya 3:4.4; 2. England 3;6.7, 3. Uganda 3: 7. 5.

Marathon: I. Thompson (England) 2: 09: 12 0; 2. J. Foster (N. Zealand) 2:11. 18.6; 3. R.Mazuba (Swaziland) 2:12.54.4.

20Km. Walk: J. Warhurst (England) 2:35 23.0: 2. R. Thorpe (England) 2: 39. 02 2; 3. P. Fullager (Australia) 2:42.03 2.

Pole Vault: D. Baird (Australia) 16ft. 6¼ in; 2. M. Bull (N. Ireland) 16. 5; 3. B. Hooper (England) 16. 5.

400m. Hurdles: A. Pascoe (England) 48.8; 2. B. Field (Australia) 49. 3; 3. B. Koskei (Kenya) 49. 3.

High Jump: G. Windeyer (Australia) 7ft. 1 in; 2 L.Peckham(Australia) 7. 0; 3. C. Ferragne (Canada) 6.11.

Long Jump: A. Lerwill (England) 26ft. ½in; 2. C. Commons (Australia) 25.11¾: 3. J. Howusu (Ghana) 25.5¼.

Triple Jump: J. Owusu (Ghana)54ft.1¾ in; 2. Mohinder Singh Gill (India) 3.11¼; 3. M. Pomaney (Ghana) 53.3.

Shot Put: G. Capes (England) 68ft. 6½ in; 2. M. Winch (England) 63.6¼; 3. B. Pirnie (Canada) 61.3½.

Discus: R. Tait (N. Zealand) 206ft. 11½ in; 2. W. Tancred (England)195. 1¾: 3. J. Hillier (England) 187. 8¾.

Javelin: C. Clover (England) 278ft. 7¼ in; 2 D. Travis (England) 262.2½: 3. J. Mayava (Kenya) 254.5½.

Decathlon: M. Bull (N. Ireland) 7,417 pts; 2. B. King (England) 7,277; 3. R. Lethbridge (Australia) 7,270.

Women

100m: R. Boyle (Australia) 11.2; 2 A Lynch (England) 11. 3; 3. D. Robertson (Australia) 11.5.

200m. R. Boyle (Australia) 22.5; 2.D. Robertson (Australia) 22.7; 3. A. Annus (Ghana) 22. 9.

400m. Y. Saunders (Canada) 51. 7; 2. V. Bernard (England) 51. 9; 3. C. Rendina (Australia) 52.1.

100m. Hurdles. J. Vernon (England) 13.5; 2. R. Dell (Australia) 13. 5; 3 M. Oshikoya (Nigeria) 13.7.

4x100 M: Relay: Australia 43.5;2. England 44. 3; 3. Ghana 44 4.

800 m. C. Rendina (Australia) 2: 1. 1; 2. S. Haden (N Zealand) 2:2.0; 3. S. Chebichi (Kenya) 2:2.6.

1,500m; J. Reiser (Canada) 4:7. 8; 2. J. Alison (England) 4:10.7; 3. T. Wright (Canda) 4:12 3.

4x400m. Relay: England 3:29.2; 2. Australia 3:30. 7; 3. Canada 3:33.9.

High Jump: B Lawton (England) 6ft. ½in; 2: L. Hanna (Canada) 5.11¾; 3. B. Bittner (Canada) 5.11.

Long Jump: m. Oshikoya (Nigeria) 2. B. Eisler (Canada) 3. R. Martin Jones (Wales).

Shot Put: J. Haist (Canada) 16 12; 2. V. Young (N. Zealand) 15. 29; 3. J. Roberts (Australia) 14.10.

Discus. J. Haist (Canada) 182 ft. 1½ in; 2. R. Payne (Scotland) 176.11½; 3. C Martin (Canada) 174.5.

Javelin, P. Rivers (Australia) 182 ft. 1 in; 2. J. Symon (Australia) 171.1; 3. S. Corbett (England) 165.0.

Pentathlon: Mary Peters (N. Ireland) 4,455 pts; 2. M. Oshikoya (Nigeria) 4,423; 3. Ann Wilson (England) 4,236.

Swimming

4×100 M. Medley Relay: Canada 3:52.93, 2. Australia 3:55.76, 3. England 4:00.48.0

4×100M. Freestyle Relay: Canada 3:33.79, 2. Australia 3:34.26, 3. England 3:38.22.

K. S. I. D. C.

Renders promotional and financial assistance to large and medium scale industries in Kerala

Financial:

Participation in share capital, uuderwriting of shares, granting of medium and long term loans, guaranteeing deferred payments, guaranteeing rupee loans etc.

Promotional:

Assistance for setting up new projects, obtaining licence, securing foreign technical and financial collaboration, providing assistance for securing infra-structural facilities such as land, power, water etc.

Projects on hand include cigarette, soda ash, nylon, nickel cadmium cells, paper and pulp, tannery, conveyor belt, HDPE sacks, special refractories, rubber threads etc.

Special incentives offered:

Special incentives such as relaxation in the margin of security for loan assistance, reduction in the rate of interest, extension in the period for repayment of instalment principal in respect of loans, increased participation in share capital etc., are being offered to industries in the backward districts viz: Trivandrum, Alleppey, Trichur, Malappuram and Cannanore of the State.

For details, Contact:

KERALA STATE INDUSTRIAL DEVELOPMENT CORPORATION LIMITED

SASTHAMANGALAM, Post Box No. 105
TRIVANDRUM–1, KERALA

400 M. Individual Medley: M. Treffers (N. Zealand) 4:35.90, 2: B. Brinkley (England) 4:41.29, 3. R. Terrell (England) 4:42.94.

1,500 M. Freestyle: S. Holland (Australia) 15:34.73, 2. M. Treffers (N. Zealand) 15:59.82, 3. S. Badger (Australia) 16:22.23.

Springboard Diving: D. Wagstaff (Australia) 531.54 pts, 2. S. Cranham (Canada) 509.61, 3. T. Simpson (England) 489.69.

Highboard Diving: D. Wagstaff (Australia) 490.74 pts, 2. A. Jackomos (Australia) 472.47, 3. S. Cranham (Canada) 460.98.

100 M. Backstroke: M. Tonelli (Australia) 59.65, 2. S. Pickell (Canada) 59.88, 3. B. Cooper (Australia) 1:00.32.

100 M. Freestyle: M. Wenden (Australia) 52.73, 2. B. Robertson (Canada) 53.78, 3 B. Phillips (Canada) 54.11.

200 M Backstroke: B. Cooper (Australia) 2:04.51, 2. R. Seymour (Australia) 2:06.64, 3. R. Williams (Australia) 2:09.83.

200 M. Butterfly: M. Brinkley (England) 2:04.51, 2. R. Seymout (Australia) 2:06-64, 3. J. Coutts (N. Zealand) 2:07.03.

200 M. Breaststroke: D. Wilkie (Scotland) 2:24.42, 2. D. Leigh (England) 2:24.75, 3. P. Nalsby (England) 2:27.36.

400 M. Freestyle: J. Kulasalu (Australia) 4:01.44, 2. B. Cooper (Australia) 4:02.12, 3. S. Badger (Australia) 4:04.07.

100 M. Breaststroke: D. Leigh (England) 56.58, 2 B. MacDonald (Canada) 56.83, 3. B. Robertson (Canada) 56.84.

100 M. Breaststroke: D. Leigh (England) 1:06.52, 2. D. Wilkie (Scotand) 1:07:37, 3. P. Nalsby (England) 1:08.52.

200 M. Medley: D. Wilkie (Scotland) 2:10.11, 2 B. Brinkley (England) 2:12.73, 3. G. McDonald (Canada) 2:12.98.

200 M. Freestyle: S. Badger (Australia) 1:56.72, 2. B. Robertson (Canada) 1:57.21, 3. M. Wenden (Australia) 1:57.83.

4×200 M. Freestyle Relay: Australia 7:50.13, 2. England 7:52.90, 3. Canada 7:53.83.

4×100 M. Medley Relay Canada 4:24.77 2. Australia 4:30.55, 3. Scotland 4:31.68.

Women

4×100 M. Medley Relay: Canada 4:24.77 2. Australia 4:30.55, 3. Scotland 4:31.68.

4×400 M. Freestyle Relay: Canada 3:57.14 2. Australia 4:02.37, 3. England 4:05.59.

400 M. Individual Medley: L. Cliff (Canada) 5:01.35, 2. B. Smith (Canada) 5:03.68, 3. S. Hunter (N. Zealand) 5:07.20.

Springboard Diving: C. Shatto (Canada) 430.83 pts. 2. B. Vee (Canada) 426.93, 3. T. York (Canada) 413.83.

Highboard Diving: B. Boys (Canada) 361.95 pts, 2. B Williams (England) 352.14, 3. M. Barnet (Australia) 339.30.

100 M. Backstroke: W. Cook (Canada) 1:06.37, 2. D. Gurr (Canda) 1:06.37, 3. L. Young (Australia) 1:07.52.

100 M. Freestyle: S. Gray (Australia) 59.13, 2. G. Amundzed (Canada) 59.36, 3. J. Wright (Canada) 59.46.

200 M. Backstroke: W. Cook (Canada) 2:20.37, 2. S. Yost (Australia) 2:22.07. 3 D. Gurr (Canada) 2:23.74.

200 M Butterfly: S. Yost (Australia) 2:20.57, 2. P. Stenhouse (Canada) 2:20.66, 3. G Neall (Australia) 2:21.66.

200 M. Breaststroke: P. Beavan (Wales) 2:43.11, 2. B Whitfield (Australia) 2:43.58, 3. A. Smith (Australia) 2:45.08.

400 M. Freestyle: J. Turrall (Australia) 4:22.09, 2 W. Quirk (Canada) 4:22.96, 3. J. Parkhouse (N. Zealand) 4:23.09.

100 M. Butterfly: P. Stenhouse (Canada) 1:05.38, 2. K. Wickham (Scotland) 1:05.96, 3. S. Yost (Australia) 1:06.64

200 M. Individual Medley: L Cliff (Canada) 2:24.13, 2. B. Smith (Canada) 2:25.17, 3. S. Hunter (N. Zealand) 2:26.18.

200 M. Freestyle: S. Gray (Australia) 2:04.27, 2. J Turrall (Australia) 2.06.90, 3. G. Amundzed (Canada) 2:07-03.

100 M. Breaststroke: C. Gaskell (England) 1:16.42,20 M. Stuart (Canada) 1:16.61, 3. S. Dickie (Scotland) 1·17.17.

800 M. Freestyle: J. Parkhouse (N. Zealand) 8:58.49, 2, J. Turral (Australia) 8:58.53, 3. R. Milqate (Australia) 8:58.59.

WE LIVE UP TO OUR NAME

THE DHANALAKSHMI BANK LTD.

TRICHUR

(*Estd. 1927*)

Interest rates:

S. B. Accounts	5½%
Term deposits	5½% to 10%

Branches: **Trivandrum, Sherthallai, Cochin, Ernakulam, Trichur, Irinjalakuda, Calicut, Palghat, Kunnamkulam and at 37 other centres in Kerala.**

Chairman: T. K. Pillai B. A., C. A. I. I. B.

For Agricultural Implements & tools
Pickaxes, Mamooty, Forks, Hoes, Digging Forks,
Sledge Hammers, Stone Breaking Hammers,
Pumps, Well Pulleys etc. etc.

***Insist on* KUMAR**

Hall-mark of quality goods available throughout Indian Union. Contact your local dealers.

Manufactured by:

KUMAR INDUSTRIES
ENGINEERS & FOUNDERS; P. O. EDATHARA.
PALGHAT Dt. (KERALA)

Phone : PARLI - 21
Grams : KUMAR - EDATHARA

Rly. Station : PARLI
(S. Rly.)

Sole Selling Agents:
KUMAR AGENCIES
P. B. No. 2, G. B. Road, PALGHAT - 1

Phone : Palghat - 178

Wrestling

Flyweight: Sudesh Kumar (India)
Bantamweight: Prem Nath (India)
Lightweight: Jagrup Singh (India)
Welterweight: Raghunath Pawar (India)
Lt. flyweight: Mitchell Kawasaki (Canada).
Middleweight: David Aspin (N. Zealand).
Featherweight: Egon Beiler (Canada).
Lt. heavyweight: Terry Paice (Canada).
Heavyweight: Claude Pilon (Canada).
Super-heavyweight: Bill Benko (Canada).

Boxing

Flyweight. D Larmour (N. Ireland) 2. C. Narayan (India); 3 J Byanhanga (Uganda).

Lightweight; A. Kalule (Uganda); 2. K. Amah (Nigeria); 3. M. Venu (India)

Lt. Flyweight: S. Muchoki (Kenya); 2. J. Odwori (Uganda); 3. S. Kadir (Singapore).

Bantamweight: P. Cowdell (England); 2. A. Rojo (Uganda) 3. N. Chiranga (Zambia).

Lt Welterweight: O. Nwakpa (Nigeria); 2. A Marter (Ghana); 3. P. Mathenge (Kenya).

Lt.Middleweight: L. Mwale (Zambia); 2. A. Harrison (Scotland); 3 L. Revill (N. Zealand).

Featherweight: E. Ndukuru (Nigeria) 2. S. Odhiambo (Uganda); D Anderson (Canada).

Lt.Heavyweight: W Knight (England); 2. B Byrne (N. Zealand); 3. G. Ferris (N. Ireland).

Welterweight: M. Muruli (Uganda); 2. E. McKenzie (Wales); 3. J. Rodgers (N. Ireland).

Heavyweight: N. Meade (England); 2. F. Ayinia (Nigeria); 3. Y. Samu (W. Samoa).

Weightlifting

Flyweight: P. McKenzie (England) 215 kg; 2. A. Mondal (India) 200; 3. J. McNiven (Scotland) 192.5.

Bantamweight: M. Adams (Australia) 222.5 kg; 2. Y. Cargman (Canada) 212.5; 3. S. Vallaiswamy (India) 212.5.

Featherweight: G. Vasillades (Australia) 237.5 kg; 2. G. Hay (Australia) 235.2; 3. B. Duffy (N. Zealand) 212 5.

Lightweight: G. Newton (England) 260 kg; 2. I. Owen (Wales) 255; 3. B. Cameron (N. Zealand) 252 5.

Middleweight: T. Ebert (N. Zealand) 275 kg; 2. S. Bailey (Trinidad) 275; 3. R. Wrench (Wales) 270.

Lt.Heavyweight: T. Ford (England) 302.5 kg; 2. P. Wallwork (W. Samoa) 300; 3. M. Pearman (England (292.5).

Middle-Heavyweight: N: Ciancio (Australia) 332.5 kg;2. B. Marsden (N. Zealand 315; 3. S. Wyatt (Australia) 310.

Heavyweight: R. Prior (Canada) 352.5 kg 2. J. Bolton (N. Zealand) 340; 3. J. Barrett (N. Zealand) 320.

Super Heavyweight: G. May (N. Zealand) 342 5 kg 2. A. Kerr (England) 337.5) 3. T. Perdue (Wales) 330.

Badminton

Men's Singles: P. Gunalan (Malaysia) bt. J. Paulson (Canada) 15-1, 15-6.

Women's Singles: G. Gilks (England) bt M. Beck (England) 11-8, 11-8

Men's Doubles: D. Talbot & E Stuart (England) bt R. Stevens & M. Tredgett (England) 15-6, 6-15, 15-11.

Women's Doubles: M. Beck & G. Gilks (England) bt. S. Whetnall & M. Boxall (England) 15-7, 15-5.

Mixed Doubles: D. Talbot & G. Gilks (England) bt P. Whetnall & N. Gardner (England) walk over.

ASIAN GAMES

(Seventh Meet)

It was India who took the leadership to organise a sports festival for Asian countries on Olympic lines. The first Asian Games were held in 1950 at New Delhi. Since then Asian Games have been held successively every four years—1954 at Manila, Philippines: 1958 at Tokyo, Japan; 1962 at Djakarta, Indonesia; 1966 at Bangkok, Thailand; 1970 again at Bangkok.

The 1974 Asian Games were held at Teheran, the Capital of Iran in Sept. 1974. The games were opened by the Shah of Iran on Sept. 1, 1974. They were concluded on Sept. 17. Teams from 25 Asian countries competed.

Medals Tally

Japan claimed 75 of 202 gold medals in the Asian Games. China ended up third in the gold standings, with 33 golds, Iran coming up second with 36. However, China had the second highest total of all medals, in addition to their golds, 45 silvers and 28 bronzes, second only to Japan's 50 silvers and 51 bronzes.

Medals standings for all teams. Japan gold 75, silver 50, bronze 51;

WE HAVE OUR TARGETS HIGH SET FOR QUALITY
AND
LOW SET FOR PRICES

Please Patronise The Products of Public Sector Enterprises

KERALA STATE INDUSTRIAL ENTERPRISES LIMITED
TRIVANDRUM

(A Holding Company of the Government of Kerala)

KERALA SOAPS AND OILS LTD., CALICUT	Soaps and Shark Liver Oil products
KERALA ELECTRICAL AND ALLIED ENGINEERING COMPANY LTD. MAMALA (COCHIN) & KUNDARA	Distribution Transformers L. T. Switchgear, Steel structurals and Cast-Iron specials
TRAVANCORE PLYWOOD INDUSTRIES LIMITED, PUNALUR	Plywood panels and Flush Doors
TRIVANDRUM RUBBER WORKS LIMITED, TRIVANDRUM	Cycles, Cycle Tyres, Cycle Rims and Foam Rubber products
THE KERALA CERAMICS LTD., KUNDARA	Porcelain Crockery. Spray dried Kaolin (Paper coating Clay) and Industrial Kaolin
KERALA STATE DRUGS & PHARMACEUTICALS LIMITED ALLEPPEY	Medicinal preparations

Iran 36—28—17; China 33—45--28; South Korea 16—26—15; North Korea 15-14—17; Israel 7—4—8; India 4—12 -12; Thailand 4—2—8; Indonesia 9—4 —4; Mongolia 2—5—8; Pakistan 2—0—9; Sri Lanka 2—0—0; Singapore 1—3 --7; Burma 1—2—3; Iraq 1—0—5; Philippines 0—2—12; Malaysia 0--1--4; Kuwait 0—1—0; Afghanistan 0—0 –1;

India's overall medal position was 4 gold, 12 silver and 12 bronze.

The Indian medal winners: V. S. Chauhan, T. C. Yohannan, Shivnath Singh and Sriram Singh (Athletics-gold). Shivnath Singh, Gurmej Singh, Praveen Kumar, Nirmal Singh, Mohinder Singh Gil and Bahadur Singh and 4×100 metres relay team (athletics-silver) Major Singh, J. Bura, Mehtab Singh (boxing silver); Karni Singh (shooting-silver and hockey-silver), Jagraj Singh (athletics-bronze) Chandra Narayan, M. Venu (boxing-bronze), Satish Pillai, Lehmber Singh, Suresh Babu (athletics-bronze), Satbir, Satpal, Sukhcahin (two) wrestling-bronze), Karni Singh (shooting-bronze and badminton bronze)

NATIONAL ATHLETICS

The history of organised all India athletic competitions starts from 1924. In that year, the Olympic Association of India conducted a sports competition in Delhi, to select an Indian team for Paris Olympics. The next all India meet was held in Calcutta in 1927. Thereafter, competitions on an all India level were held every two years by the Indian Olympic Association.

In 1946, the All India Amateur Athletic Federation was formed and All India Athletic meets have been held every year since.

13th NATIONAL ATHLETIC CHAMPIONSHIPS—HYDERABAD JAN. 1975

Results

Overall Champions

(1) W. Bengal, won overall championship with 113 points.

(2) Punjab 110 points

Team Titles

Men	Bihar	75	points
Women	Karnataka	39	points
Senior Boys	Punjab	43	points
Senior Girls	W. Bengal	34	points
Junior Boys	Punjab	35	points
Junior Girls	Tripura	10	points
Sub-Junior Boys	W. Bengal	26	points

Men

20 Kilometre walk. Arockiaswamy (Karnataka) 2 P. C. Santosh Kumar (Tamil Nadu) 3 Narayan Dutta (W. Bengal) 1 hr. 44 m. 35.8s.

400 m. hurdles. 1 Lehmber Singh (Punjab) 52.8s. 2 D. Jayseelan (Maharashtra) 3 Chacko Jacob (TN)

300 m. R. Gunasekharan (TN) 21.8s. 2 M. Porel (W.B.) 3. L. Louis (T.N.)

1,500 m. 1 T. Venkateshulu (Karnataka) 3 m. 58.7s. 2 Baba Din (UP) 3 Martin Rajendran (Karnataka)

Javelin Throw. Jeevan Ganpat (Bihar) 64.92 m. 2 Narinder Singh (Punjab) 3 Jujhar Singh (Bihar)

10,000 m. 1 Shivnath Singh (AP) 29m.33.2s. (New record) 2 Rajkamal Dogra (Delhi) 3 Francis (Karnataka)

Triple Jump. 1 Dakshina Murthy (Tamil Nadu) 15.37 m. 2 S. Balasubramaniam (Tamil Nadu) 3 A. Naresh (Bihar)

Shot Put. 1 Jagraj Singh (Bihar) 17.54m. (New record) 2 Bahadur Singh (Bihar) 3 Vijay Bahadur Singh (Punjab)

100 m. 1 M. A. Aziz (Bihar) 10.9 s. 2 P. Ganasekharan (T.N.) 3 L. Louis (Maha)

800 m. 1 Pratap Kumar (Bih.) 1:51.7s. 2 Amrjit Singh (Del.) 3 T. Venkateshulu (Kar.)

300 m. Steeplechase. 1 Durgadas (AP) 9:37.2s. 2 M. Prabhakar Rao (AP) 3 Ratan Singh (H. P.)

100 m. hurdles. 1 Ranjoy Roy (W.B.) 14 8s. 2 V. S. Chauhan (Bihar) 3 K. C. Shanker (Kar)

Long Jump. 1 T. C. Yohanan (Bihar) 7.70m. (New Meet record) 2 Faleioro (Maha.) 3. M. S. Yadav (Orissa)

Hammer Throw. 1 Charan Singh (Delhi) 51 52m. 2. Bahal Singh (Pun) 3 Sukhbinder Singh (Bihar)

Relay (4 X 400 m.) 1 Bihar 3m. 16.0s. 2 Karnataka 3 West Bengal

400 m. 1 U. K. Prabhu (Karnataka) 48.6s. 2 D. Jayaseelan (Maharashtra) 3 P. R. Purushothaman (Bihar)

Marathon Race. 1 Vinod Kumar (Punjab) 2 hrs. 45 min. 38.8s. 2 Savai Singh (Karnataka 3 D. Y. Biredar (Karnataka)

DREAMING OF DISTENT EXOTIC LANDS FOR A VACATION ?

THEN VISIT GOA

Miles and miles of silvery beaches bordering tranquil off-shore waters invite you to play or just relax and dream on the soft sands bathed in mellow sunshine. Cool westerly breezes refresh you day and night.

Enjoy sightseeing by daily conducted tours. De-luxe buses take you cheaply and comfortably to the most lovely tourist sites.

Modern luxurious Tourist Hostels and Cottages at World — renewed beaches of Calangute and Colva offer an enjoyable stay at moderate rate at these popular seaside resorts.

Do not miss the beauty of Goa. See Dudhsagar, Arvalem waterfalls, golden palm-fringed beaches, Old Goa churches, Ponda temples etc. etc.

SEE GOA TODAY!

For information please contact.

Tourist Bureau,

Govt. of Goa, Daman & Diu, Afonso de Albuquerque Road

(Tel. Nos. 2673 & 2535)

Issued by: Department of Information and Tourism.
Govt. of Goa, Daman and Diu, Panaji Goa

KC **KALA CARTONS PRIVATE LTD**

Manufacturers of

CORRUGATED & DUPLEX CARTONS OF ALL SPECIFICATIONS, POLYTHENE SHEETS

Sakthikulangara, QUILON

KERALA.

Gram : 'CARTONS'
Telex : QN - 205
Phones : Office : 4175 & 2262
Res : 3659

Discuss Throw. 1 Loknath Bolar (Karnataka) 49.38 m. 2 Bahadur Singh (Bihar) 3 Jagraj Singh (Bihar)

Pole Vault. 1 Gurdip Singh (Bihar) 4.00m. 2 S. Puttur (Bihar) 3 W. A. Naqui (UP)

Decathlon. 1 Kapur Singh Hooda (Haryana) 6,074 points 2 Subash Patel (Gujarat) 6,019 pts. 3 Rajendra Singh (Punjab) 5,839 pts.

5,000 m 1 Shivnath Singh (AP) 14 min. 46.0s. 2 R. Chunku Ram (AP) 3 Francis (Karnataka)

4 X 100 m. Relay. Bihar (F. D'souza, 42.2s. D. Yohannan, P.R. Purushotham and David Premnath) 2 Tamil Nadu 3 Karnataka

High Jump. 1 Suresh Babu (Bihar) 2.01m. 2 R. Rameshan (Bihar) 3 A. Napolean.

Women

200 m 1 Mary Verghese (Karnataka) 25.1s. (New Meet record) 2 Irene Saldanha (Karnataka) 3 Srirupa Chatterjee (W B)

1,500 m. 1 Promila (Punjab) 4min. 52.3s. 2 Uttam (Punjab) 3 Bisini (Kerala)

100 m. Hurdles 1 Sulekha Sule (Maharashtra) 15.6s. 2 Usha Rani Misra (Orissa) 3 Savitri Sur (Tripura)

High Jump 1 Usha Rani Misra (Orissa) 1.60 m (New Meet record) 2 Angel Mary (Karnataka 3 Thankamma Antony (Kerala)

400 m 1 Carol Patrick (Maha.) 59.6s. 2 Manjit Soni (Har) P. Matanga (Maha)

100 m. Marie Verghese (Kar) 12.2s. Equals National and Meet records 2 V. Anusuya Bai (T N.) 3. Veena Chandela (Del.)

Long Jump 1 Bina Oommen (T.N.) 5.65m New Meet record. 2 Angel Mary (Kar.) 3 M. Chhada (Maha.)

Relay (4 X 400 m) Karnataka (Irene Saldanha, Marie Verghese, Angel Mary and Manjula Appiah) 4.73s. 2 Punjab 3 Kerala

4 X 100 m Relay. 1 Karnataka (Marie Verghese, Beatrice Bhandara, Irene Saldanha and Angel Mary) 49.1s (New Nat. record) 2 Maharashtra 3 Punjab

Shot Put 1 Subrata Debnath (West Bengal) 12 52m. (New Meet record) 2 V. Anasuya Bai (TN) 3 Anuva Chatterjee (WB)

Discus Throw. 1 V. Anasuya Bai (Tamil Nadu) 41 50 m. (New record) 2 Subrata Debnath (W. Bengal) 3 Gurban Karu (Maharashtra)

800 m. 1 Manjit Soni (Haryana) 2 min. 25.1s. 2 Uttam (Punjab 3 M. Dorji (Orissa

Javelin Throw. 1 Gurbans Kaur (Maharashtra) 37.24m 2 Julita Minz (Orissa) 3 Anuva Chatterjee (WB)

Senior Boys

200 m. 1 B. K. Sahu (Orissa) 22.8s. 2 Asam Badsha (Gujarat) 3 S. Majhi (W.B.)

300 m. hurdles. 1 Manjit Singh (Punjab) 39.5s. 2 M. T. Moyara (Gujarat) 3 Rajinder Singh (Delhi)

3,000 m. 1. Gopal Sajni (Rajasthan) 2 Pradip (Punjab) K Rama (Karnataka)

High Jump. 1 Baltej Singh (Rajasthan) 1.80m. 2 T. Suresh (A P.) 3 Subhas Mehta (Rajasthan)

Pole Vault. 1 K. P Satish (Kerala) 3.75m. 2 Amarjit (Haryana) 3 Gurjit Singh (Punjab)

Shot Put. 1 Mohan Singh (Punjab) 14.6m. 2 Jatinder Chopra (Delhi) 3 Lakhi Bori (Assam)

110 m Hurdles 1 Manjit Singh (Punjab) 15.1s. 2 Rajendra Singh (Delhi) 3 Khan (Bihar)

800 m. 1 Rajan (T.N.) 56 8s 2 Grenville Boward (Karnataka) 3 Nirmal Singh (Karnataka)

Discus Throw. 1 Mohan Singh (Punjab) 43 48m. 2 Atul Pegu (Assam) 3 Amar Singh Poonia (Rajasthan)

Triple Jump. 1 D. Sali (Kerala) 14 64m. 2 Darshan Singh (Punjab) 3 Sunirmal Ghosh (W.B.)

Javelin Throw. 1 Jagdish Singh (Haryana) 54.64m 2 Ram Pal (Haryana) 3 Surinder Singh (Punjab)

Long Jump 1 Darshan Singh (Punjab) 6.55m. 2 A. Xavier (TN) 3 Prabhat Singh (J & K)

Hammer Throw. 1 Amar Singh (Rajasthan) 55.24m (New Meet record) 2 Gurudev Singh (Punjab 3 Abraham Samuel.(Kerala)

Decathlon. 1 Prabhat Singh (J & K) 6,217 points 2 Nageswar Rao (AP, 5,159 pts. 3 Devinder Pal Singh (Haryana) 5,077 pts

400 m. 1 Kasan Badshan (Guj) 50.2s.

100 m R. Fernandez (Maha.) 11.2s.

1,500 Steeple Chase. Gopal Saini (Raj.) 4m 26 9s.

4 X 100 m. Relay. West Bengal 43.8s.

Senior Girls

100 m. 1 M. Fernandez (Maharashtra) 13.2 Secs. 2 Taj Iqbal Kaur (WB) 3 Amina Brahma (WB)

80 m Hurdles. 1 Sabitri Sur (Tripura) 13.1 secs. 2 Rujutha Pethe (TN) 3 K Bhattacharjee (Tripura.

TO ALL LIVING MOTHERS AND FATHERS

Do you Know that

Approximately 15 million Children in India, below the age of 5 years, suffer from severe protein calorie malnutrition.

These children run the risk of permanent stunting of growth.

Much worse.

They may be denied for ever the chances of laying solid foundations for developing their intelligence.

The wealth of the nation, is the health of the Children.

You hold the Key to your child's health.

Avoid repeated pregnancies – it saps the health of the mother, and seals the fate of the child.

Limit the number of children - Let them be given enough of food, and more important more of loving care.

Research has shown that

MALNUTRITION IN CHILDREN IS GREATEST IN LARGE FAMILIES.

STATE FAMILY PLANNING BUREAU

4×100 m. Relay. 1 West Bengal 52.1 secs. (New Meet record) 2 Tamil Nadu 3 Maharashtra

Long Jump. 1 Sabitri Sur (Tripura) 5.02 m. 2 Thankamma Anthony (Kerala) 3 Kavita Bhattacharjee (Tripura)

800 m. 1 Sheela Verghese (Kerala) 2 m 28.6 secs. 2 M. Fernandez (Maharashtra) 3 Gowri Prabhu (Karnataka)

Javelin Throw. 1 Lilabati Daimari (Assam) 28.60 m. 2 Dibya Baruah (Assam) 3 Devinder (Punjab)

Discuss Throw. 1 Devika Biswas (WB) 29.36m(New National Record) 2 Anima Brahma (WB) 3 Taj Iqbal Kaur (W B)

High Jump. 1 Thankamma Anthony (Kerala) 1.46 m. 2 Namita Patra (WB) 3 M. P. Shobha (Kerala)

200 m. Merylyn Fernandez (Maharashtra) 26.4 secs. (New National Record previous 26.5)

Junior Boys

100 m. 1 R. C. Das (Orissa) 11.2 secs. 2 Manjit Pal Singh (Punjab) 3 P. S. Dass (WB)

110 m Hurdles 1 R C. Dass (Orissa) 14.00 secs. 2 K. Dass (WB) 3 Amar Mondal (WB.)

Javelin Throw. Joginder Singh (Punjab) 52.26 m. 2 K. Benjamin (AP) 3 Prabhat Singh (J & K)

4×100 m. Relay. 1 (Punjab) Daya Singh, Harbans Singh, Manjitpal Singh, and Manjit Singh 45.1 secs. 2. (West Bengal) 3 Rajasthan

800 m. 1 Suresh Khes (MP.) 1 min. 59 5 secs. 2 Y. Rama Rao (A P.) 3 Anthony Motha (Kerala)

Long Jump. 1 Sunirmal Ghosh (WB.) 6.55 m. 2 Satnam Singh (Punjab) 3 Rakesh Sood (Rajasthan)

Hammer Throw. 1 Amar Singh (Rajasthan) 65.08 m. 2 Karnail Singh (Punjab) 3 Sabir Ahmed (Assam)

Pentathlon. 1 Jaswant Singh (Rajasthan) 4,250 pts. 2 R. Balaji (AP.) 4,151 ponts 3 Rakesh Sood (Rajasthan) 4,075 pts.

200 m. 1 N. K. Karmakar (WB) 36.7 secs. 2 R C. Dass (Orissa) 3 Harbans Singh (Punjab)

Discus Throw. 1 Surjit Singh (Punjab) 41.50 m 2 S. Kulkarni (Maharashtra) 3 Kalipadi Bhowmick (WB.)

Shot Put. 1 Gurbinder Singh (Punjab) 15.40 m. 2 Dharma Gogoi (Assam) 3 Amar Singh (Raj.)

Pole Vault. 1 Amarpal (Haryana) 3.50 m. 2 T. Krishna Rao (A P.) 3 Unnikrishnappa (Kerala)

High Jump. 1 Baltej Singh (Raja.) 1.86m.

Shot Put. 1 Gurbinder Singh (Pun) 15.40 m.

Junior Girls

80 m. Hurdles. Arati Sharma (Tripura) 10.4 secs. 2 Pappiah Banerjee (WB) 3 Ishrat (TN)

Shot Put. 1 Vibha Amin (Gujarat) 8.66 m. 2 Pritilata Mohanti (Orissa) 3 Maya Das (WB)

Long Jump. 1 Arati Sharma (Tripura) 4 49 m. 2 Anita Akolekar (M.P.) 3 Meena Satyaprakash (Gujarat)

600 m. 1 Avinash (Pun.): 4 49 secs. 2 K. A. Laila (Kerala) 3 Annamma Anthony (Kerala)

High Jump. 1 Uma Devi (Kerala) 1 31 m. 2 Manju Dohar (Rajasthan) 3 Sikha Som (W. Bengal)

100 m. 1 M. Sequeria (Maharashtra) 13 7 secs. 2 S. Pradhan (Orissa) 3 Ishrat (TN.)

Pentathlon (girls). Savitri (Tripura) 2,700 points 2 Rajshree Bhattacharjee (W B)2,496 pts. 3 Kavita Bhattacharjee (Tripura) 2,323 pts.

Sub-Junior Boys

110 m. 1 R. N. Moula (Orissa) 11.9 secs. 2 L. K. Nandi (W B) 3 T. Bassu (W.B.)

800 m. 1 Sham Lal (J & K.) 2 min. 6.0 secs. 2 Chackochan Kunjidaylo (Kerala) 3 Baliram Gaikwad (Gujarat)

Shot Put. 1 Pratap Banerjee (W.B.) 13.79 m. 2 Rajani Chettiah (Assam) 3 Amar Pal (Haryana)

Broad Jump 1 S. K. Mohanty (Orissa) 6.28 m 2 D. Gopalakrishna Murthy (AP.) 3 Sri Raj Singh (Rajasthan)

Discus Throw. 1 Pratap Banerjee (W.B.) 39.10 m. 2 Bhupinder Singh (Punjab) 3 Amar Pal (Haryana)

High Jump. 1 Immanual Huqe (W.B.) 1.76 m. 2 Bablu Sarkar (W. B.) 3 Xavier Kutty (Kerala)

12th INTER-STATE ATHLETIC MEET

Jaipur Feb. 1974

Men's Team Title	1. Bihar 80 points 2. Rajasthan 53 pts

Bihar wins the Men's title for the third time in a row.

Women's Title	1. Tamil Nadu 38 points 2. Maharashtra 32 points
Senior Boys	1. Rajasthan 37 pts. 2. Punjab 22 ,,
Junior Boys	1. Rajasthan 34 ,, 2 Orissa 24 ,,

PHONES
Shop : 24910
Shop : 22926
Res. : 25135
Godown : 30804
,, : 26081

P. V. UKKURU

HARDWARE MERCHANT
15/7, NAWAB HAKIM ROAD,
COIMBATORE - 641001.

Branch:
T. D. WEST ROAD
ERNAKULAM, COCHIN-11
PHONE : 32634

For Pleasant Smoke
USE ALWAYS

KERALA
DINESH BEEDI
CANNANORE

Phone: 3699
Tel. 'DINESBEEDI'

Sub-junior Boys	1.	Orissa 18 ,,
	2.	Rajasthan 15 ,,
Girls	1.	Tripura 11 ,,
	2.	W Bengal 10 ,,
Junior Girls	1.	Tripura and Maharashtra (Bracketed) 18 ,,
	2.	Orissa 15 ,,

Results

Long Jump (Sub-jr. boys) 1. Himanshu Pandey (Rajasthan) 5.91 metres, 2 Santosh Kumar Murty (Orissa) 3. Rajani Chetia (Assam)

Shot Put (girls) 1. G. Ferrier (Tamil Nadu) 8 1 m. 2 Taibunisa (Assam), 3. Kumud Amin (Gujarat)

Marathon Race (men): 1. Ram Narain (Raj.) 2h 24: 45.6 secs 2. B. N. Tripathi (Orissa), Vinod Kumar (Punjab).

Javelin Throw (sr. boys.) 1 Jagdish Singh (Harayana) 52.24 m 2. Hitest Das (Assam) 3. A. Dass (Orissa)

High Jump (Girls): 1. Usha Rani Misra (Orissa) 1.45 m. 2 Nomita Patra (WB) 3. Sujata Khot (Karnataka).

Discuss Throw (Jr. boys) 1. K P. Bhowmic (WB) 49.04 m (New Meet record) 2 Manjeet Singh (Raj.), 3. Karnail Singh (Punjab).

300 Metres Hurdles (Sr boys): 1 Mohan Moyra (Gujarat) 40.8 sec 2 Jaswant Singh (Punjab), 3. Ashok Kalia (Rajasthan).

Pentalhlon (women) 1. Kusam Chatwal (M P) 3179 pts. 2 Bernadetta Toseano (Mah.) 3 V. Rajam (T. N).

Shot Put (Sr. boys) 1. A K. Singh (UP) 14.18 m. 2. C. Chetram (Rajasthan) 3. Lakhi Bori (Assam)

100 Metres (men). 1. Ganasekharan (TN) 10.9 sec. 2. Aziz (Bihar) 3. K. N. Sunderaj Shetty (Karnatak)

300 Metres (Jr. Boys) 1. Baby Lal (Raj.) 36.9 secs. 2 A C Mallick (Orissa) 3. Cladius Joseph (Kerala).

Long Jump (Women) 1 M Vidya Rao (T N) 5.34 m. 2. Bina Oommen (T N) 3. Angel Mary (Kerala).

200 Metres (girls) 1. Maryan Ferandes 27.2 secs. 2 Simran Kaur (Raj) 3, Latoka Kakoti (Assam).

400 Metres (Women) 1 Geeta Zutshi (Haryana) 60.7 secs. 2. Purnima Matange (Mah.) 3. Carol Petric (Mah.)

400 Metres (men) 1. Sucha Singh (Bihar) 48.4 secs. 2. Harkamaljit Singh (Delhi) 3. O. L. Thomas (Bihar)

High Jump (men) 1. Daljendar Dahlon (Punjab) 1.9 mts 2 Ramesan (Bihar) 3. Omprakash (Bihar).

800 Metres (Sub Jr. boys) 1. Anil Kasyap (M P). 2. 10 1 secs 2. Barkha Singh (Punjab) 3. Balbir Singh (UP).

Hammer Throw (men) 1. Nirmal Singh (Punjab) 54.8 m 2 Ajmer Singh (Punjab). 3. Charan Singh (Delhi).

3000 Metres Steeplechase (men) 1. K Sikaran (Raj) 9:31 0 secs 2. Bajeang Singh (Raj) 3. Bhim Singh (Haryana)

1500 Metres Steeplechase (Sr Boys) 1. Vijayanan (Kerala) 4 33.6 secs. 2. Mahesh Chand (Raj). 3. Eappachan (Kerala)

Decathlon (Men): 1 Suresh Babu (Bihar) 6,364 points 2. Vijay Kumar (Bihar) 3. Madan Singh (Raj).

4×100 M-Relay (sr. boys): 1. Rajasthan 45.0 sec. 2. W B 3. Orissa.

4×100 M-Relay (women): 1. Mah. 51 2 secs. 2. Delhi. 3 T. N.

4×100 M-Relay (Men): 1. Bihar 2. 2. Karnataka 3. T. N.

All India Inter Varsity Athletics (34th Meet)

Gwalior Jan. 1974

Champions

Men's section	-	Delhi
Women's section	-	Kerala
Men's Team Title.	1.	Delhi (36 pts)
	2.	Punjab (26 ,,)
Women's Team Title	1.	Kearla (26 Bangalore

Individual Titles

Men

5000 m. 1 Harmit Singh (Punjabi University) 15m. 12 25 s. 2. Darshan Singh (Guru Nanak) 3. Gurucharan Singh (Delhi)

10,000m. 1. Darshan Singh (Guru Nanak) 31m. 48.2 s. (New Record) 2. Harmit Singh (Punjabi 3. Gurucharan Singh (Delhi)

800 m. 1. S. D. Sharma (Meerut)

1500 m. 1. S. D. Sharma (,,)

100 m. 1. R. Gnanasekharan (Madurai) 10.7 s. (equals old record)

200 m. 1. Harkamaljit Singh (Delhi)

20 km walk (Introduced for the first time) Francis D. Alappat. 1m. 58 26 s.

High Jump. 1. A. Napolean (Madurai) 1.54 m.

Long Jump. 1. K. Rajamanickam (Madurai) 6.90 m. 2. Harkamaljit Singh (Delhi)

Pole Vault. 1 Shahib Sayed (Gujarat) 3.55 m.

"SMALL SAVINGS GROW BIG"

'A honey drop of today is Honey Comb of tomorrow'
Are you a self employed person, A Doctor
a Land lord or an Income-tax Payee-
who for some reason or other is not in a position
to contribute to a recognised Provident Fund-?
Government of India offers you a
'PUBLIC PROVIDENT FUND SCHEME'
Investors enjoy income-tax concession
for the deposits, tax-free interest
and other special privileges.

With effect from 1st August '74 interest rate is 7%

Other attractive investments are:-

(1) Post Office Time Deposits for

	1 year,	*2 year,*	*3 year and*	*5 years*
Interest:	**8%**	**8½%**	**9%**	**10%**

(2) National Savings Certificates
2nd issue, 3rd issue, 4th issue & 5th issue

For details enquire at the Collectorates or at the Post Offices or Branches of State Bank of India or its subsidiaries.

⁂

FINANCE (NSD) DEPARTMENT

Discuss Throw. 1. Balbir Singh (Punjab) 49 m.

Javelin Throw. 1. S B Kamatn (Karnataka) 53.7 m.

Hammer Throw. 1. Bahal Singh (Punjab) 53.2 m.

400 m. Hurdles 1. Chacko Jacob (Madras)

Shot Put. 1. Vijay Bahudur Singh (Guru Nanak) 15.10 m. (new record)

Decathlon. 1. Jaivir Singh (Punjabi)

4X400 m. Relay 1. Delhi 2. Punjab 3. Madras.

Women

800 m. Gita Zutshi (Punjab) 2 m. 18.3 s. (new record)

Long Jump 1. K. M. Celine (Kerala) 5.44 m. 2. Angel Mary (Mysore) 5.42 m. 3. Bina Oommen (Madras) 5.41 m. (all new records)

High Jump 1. Angel Mary (Mysore) 1.54 m. (new record)

100 m Hurdles 1. K. M. Celine (Kerala) 15.9 s. 2. B. M. Toscano (Bombay) 3. Praveen (Punjabi)

Shot Put 1. H. R. Patel (Shivaji) 9.22 m.

Javelin Throw 1. Kailash (Guru Nanak) 30.80m.

Pentathlon 1. K. M. Celine (Keraia) 2. Angel Mary (Mysore) 3 B. M Toscano (Bombay)

4X100 m. Relay 1. Kerala 51.6 s. 2 Delhi 3. Madras.

All India Inter-Varsity Athletics
35th Meet, Calicut on Dec. 74

Men's Team Title	1 Calicut	(30 pts)
	2 Guru Nanak	(30 pts)
	3 Delhi	(27 pts)

Calicut and Guru Nanak finished with 30 points but championship was given to Calicut as it seemed more firsts and seconds.

Women's Team Title	1 Kerala	(44 pts)
	2 Punjab	(18 pts)
	3 Bombay	(17 pts)

Individual Title

Men: Amarjit Singh (Delhi)

C. Aliferett (Jivaji) 10 points each

Women: K. M. Celin (Kerala) 18 pts

Individual Titles

Men

5000 m. 1. S.N. Patel (Nagpur) 15 m 34 Sec 2. Dharam Vir Singh (Delhi) 3. Raji Gupta (Meerut)

10,000 m. 1. P. K. Gaikwad (Karnataka) 33 m. 16.1 s. 2. S. N Patel (Nagpur) 3. Y. R. Getiyavar (Karnataka)

400 m. 1. Amarjit Singh (Delhi) 51.1 s. 2. Baldev Singh (Guru Nanak) 3. K. Tirumalai (Madras)

800 m. 1. Amarjit Singh (Delhi) 1 m.56.9s. 2. A. Rajan (Annamalai) 3. Jarnail Singh (Guru Nanak)

1500 m. Dharam Vir Singh (Delhi) 4m. 4s. 2. Y. R. Getiyavar (Karnataka) 3. Jaswinder Singh (Guru Nanak)

100 m 1. N. D. Kochappan (Calicut) 11 s. 2. A. Chatterjee (North Bengal) 3. R. Kapila (Jiwaji)

200 m. 1. G. R. Babu Kumar (Bangalore) 23 s. 2. N. D. Kochappan (Calicut) 3. K. Ramanathan (Annamalai)

20 km. 1. Ram Kishore (Guru Nanak) 1 h. 7 m. 34 s. 2 G. Babu (Kerala) 3. Tarlochan Singh (Punjab)

20 km (Walk). V. C. Joseph (Calicut) 1 h 54 m. (New Record) 2. K. S. Devasy (Calicut) 3. V. J. Augustin (Calicut)

High Jump 1. Harnek Singh Dhillon (Rajasthan) 1.85 m 2. B. Das (Burdwan) 3. D. Das Gupta (Delhi)

Long Jump 1. Darshan Singh (Guru Nanak) 6.98 m. 2. Mark Rebello (Delhi) 3. B. Balachandran (Jiwaji)

Pole Vault K. P. Sateesh Kumar (Calicut) 3.60 m. 2. Mathan Francis (Kerala) 3. Girpal Singh (Guru Nanak)

Discuss Throw 1. Kuldip Singh (Punjab) 90.50 m. 2. Sanjeev Kumar Sarwaria (Meerut) 3. Nawa Kishore (Madras)

Javelin Throw 1. P. J. Manuel (Calicut) 61.18 m. 2. Jagdish Singh (Kurukshethra) 3. Surinder Kumar (Punjab)

Hammer Throw 1. Bahal Singh (Punjab) 50.24 m. 2. Narinder Singh (Punjab) 3. Surinder Singh (Guru Nanak)

400 m. Hurdles 1. C. Aliferet (Jiwaji) 55.9 s. 2. P. V. Kamaraj (Madurai) 3. Ram Pratap (Punjab)

110 m. Hurdles 1. C. Aliferet (Jiwaji) 15.4 s, 2. K. S. p. Manickan (Madurai) 3. Manjit Singh (Guru Nanak)

Shot Put 1. Ranveer Singh (Rajasthan) 13.49 m. 2. Subal Mandal (Calcutta,

Triple Jump 1. Mark Rebello (Delhi) 14.55 m. 2. S. Ashok (Calicut) 3. D. Sally (Kerala)

Decathlon 1. Prabhat Singh (Jammu) 5824 pts 2. Manjit Singh (Punjab) 3. Balendar Singh (Guru Nanak)

4×400 m. Relay 1. Gurunanak 3 m 26.5s 2. Punjab 3. Kerala

4×100 m. Relay 1. Kerala 44.2 s. 2 Madurai 3. Madras

Women

1500 m. 1. Uttam Rajput (Punjab) 4m. 57.5 s. 2. P. K. Soudamini (Calicut) 3. M. G. Bisini (Kerala)

800 m. 1. Geeta Sutshi (Kurkukshethra) 2.23 s. 2. Promila (Punjab) 3. M. G. Biswani (Delhi)

HANTEX

Every One Chooses, Every One Uses
"HANTEX" HANDLOOM FABRICS
Fine Quality: Fancy Designs:
Fast Colours: Fair Price.
Manufacturers & Exporters of Handloom Dhothies,
Lungies, Bedspreads, furnishings, towels etc., etc.
Sales Units–All Over Kerala

The Kerala State Handloom Weavers'
Co-operative Society Ltd.
Trivandrum

Phone: 60797 Telegram: "HANDLOOMS"

THE KERALA FINANCIAL CORPORATION

Announces the introduction of a new scheme
for financial assistance to TECHNOCRATS

Any person who holds a degree / Diploma in any branch of Engineering/ Technology /Management or experience in industry is eligible for assistance.

Special Features : Provides 90% of the cost of the project. Levies no application fees, but only a nominal registration fee.

Maximum Assistance. Upto Rs. Two lakhs for one technocrat and three lakhs if it more than one

EASY REPAYMENT TERMS LOW RATE OF INTEREST
LONG CREDIT PERIOD

FOR DETAILS:

THE KERALA FINANCIAL CORPORATION

H. O. VELLAYAMBALAM, TRIVANDRUM-695001.
Telephones; 60319 & 62237.

BRANCHES:

1. Chittoor Road, Cochin-682011.
Tel : 33745

2. Cherooty Road, Calicut
Tel : 76719

100 m. 1. Veena Chandoli (Delhi) 12·7 s. 2. Beena Oommen (Madras) 3. Prathipal Kaul (Punjab)

Long Jump 1. K. M. Celine (Kerala) 5.39m. 2. Beena Oommen (Madras) 3. A. B. Thangamma (Mysore)

High Jump 1. Sujatha Sharma (Jiwaji) 1.49 m.

400 m. 1. Geeta Zutshi (Kurkukshethra) 1 m 1 s. 2. Philomena Mathew (Kerala) 3. Shobha P. Nair (Calicut)

200 m. 1. K. M. Celine (Kerala) 26 5s. 2 Beena Oommen (Madras) 3. Gretable Dihima (Bombay)

100 m. Hurdles Sulekha Sulu (Bombay) 15.8 s. 2 K. M. Celine (Kerala) 3. Mercykutty Mathew (Kerala)

Shot Put 1. Jenette Rodrigues (Bombay) 10.46 m. 2. Hema Patil (Bombay) 3. Rajamma Paul (Calicut)

Javelin Throw 1. Kundan Shinde (Karnataka) 33.18 m 2. Rajabala (Delhi) 3. Kailash (Punjab)

Discuss Throw 1 K. S. Shyamlatha Sharma (Indore. 33.44 m. 2 Rajamma Paul (Calicut; 3 Wilsy Alex (Bangalore)

Pentathlon 1 K M. Celine (Kerala) 2985 pts. 2. Sulekha Suli (Bombay, 3. Belgith Bhath (Punjab)

4×400 m. Relay 1 Kerala 4 m. 14 s. 2. Punjab 3 Calicut

4×100 m. Relay 1. Kerala 51 s. 2. Madras 3. Delhi

All-India Open Athletics

Ludhiana Jan. 1974

Men

Marathon Ram Narain 2hrs. 21m. 42 s. new record beating Zosa Singh's seven-year-old record of 2hrs. 23m. 32s.)

5000 m. Shivnath Singh 14m. 0.8 8s.

Long Jump T. C Yohanan (Bihar) 7.78m. (new record beating his own old record 7.60m.)

Shot Put Jagraj

1500 m. Triguna Mani Tiwari 3 m. 49s.

5000 m. Shivnath

Women

100 m Srirupa Chameifel (Railways) (equals Anasuya Bai's national record 12 2s.)

Discuss Throw. Anasuya Bai 29.15m Anasuya holds the national record at 41.02m.

100 m R. Balambal (Railways) 15 2s. (new record an improvement on her old record of 15 5s.)

NATIONAL CYCLING CHAMPIONSHIP

(29th MEET) Sonepet Feb 1974

Team Champions		
Men's Division		Bihar
Women's	,,	Orissa
Boys	,,	Rajasthan
Girls	,,	West Bengal

Individual Titles	
Men	Devindra Singh Randhwa (Bihar)
Women	Minati Mahapatra (Orissa)
Boys	Nirmaljit Singh (Punjab)
Girls	Sikha Sen (West Bengal)

BOAT RACE

Among the states of India, Kerala alone has developed boating as a sport. The topography of Kerala with its numberless rivers and extensive back-waters, has provided both the opportunity and the stimulus, for aquatic sports. Racing boats in Kerala range from, small sheath-like dug-outs that can carry just one person, to every big boats, that carry a crew of 80 to 120 people. Among the various types of racing boats, two deserve special mention - the *Oadi* and the *Chundan*.

The *Oadi*, literally the runner is between 40 and 80 feet in length. Both its ends are built alike and look alike. This enables the boat to avoid right about turns. If a boat has to change its course in the opposite direction, all that is done is that the entire crew turn about in their seats and face the opposite direction So, when a boat changes to the opposite direction, the original steersmen at the back became the rowers at the front and vice versa.

The *Oadi* is a rather flat type, that hugs the water surface. Its ends (or tips) hardly rise 3 feet above the water surface Both the ends are usually fashioned like a curled-in snake- rather loosely coiled -that is, to say, with space between the coils. These *Oadies*, should properly have been called *Snake boats*, but they are not.

The Chundan

The designation *snake boat* is applied to another type of boat, that has little resemblance to a snake, coiled or otherwise. This type of boat, is called *Chundan*,

THE KERALA STATE HOUSING BOARD

New Housing Accommodation Schemes of the Board expected to come up shortly.

TRIVANDRUM DISTRICT:-	**Manderly compound, Pandits Colony and Nedumangad.**
QUILON DISTRICT:-	**Kilikolloor.**
KOTTAYAM DISTRICT:-	**Nattakom.**
IDIKKI DISTRICT:-	**Thodupuzha, Munnar, Kattappana and Nedungandum.**
ERNAKULAM DISTRICT:-	**Alwaye, Kalamassery (extension) and Elamkulam East.**
TRICHUR DISTRICT:-	**Kuriachira and Irinjalakuda.**
PALGHAT DISTRICT:-	**Palghat District Head Quarters**
KOZHIKODE DISTRICT:-	**Eranjipalam.**
CANNANORE DISTRICT:-	**Puzhathi and Kasaragod.**

Also plots are available readily in existing schemes at P. T. P. Nagar, Ulloor and Peroorkada in TRIVANDRUM, Kaithavana in ALLEPPEY TOWN, Ayyanthole in TRICHUR, Kallepully in PALGHAT, Malaparamba in KOZHIKODE & Thalap in CANNANORE.

For economically weaker sections (annual income less than Rs. 4,200/-) plots are available in Kalamassery in Ernakulam District, Ulloor in Trivandrum District and Malaparamba in Kozhikode District.

For details of terms and conditions of schemes in

Trivandrum, Quilon & Alleppey Districts.	**Contact:**	**Regional Engineer, Trivandrum Housing unit, Trivandrum. [Phone: 5001, 5177]**
Ernakulam, Kottayam, Trichur & Idikki Districts.	**Contact:**	**Regional Engineer, Cochin Housing Unit, Pallimukku, Cochin-16. [Phone: 32052]**
Kozhikode, Malappuram, Palghat and Cannanore Districts.	**Contact:**	**Regional Engineer, Calicut Housing Unit, Cherooty Road, Calicut, [Phone: 72165]**

THE KERALA STATE HOUSING BOARD

M. K. KRISHNAN
Secretary.

ROSAMMA PUNNOOSE
Chairman.

Malayalam, which merely means pointed or sharp tipped. It is much bigger than the *Oadi* and altogether different in design. The Chundan is eighty to hundred and twenty long, and usually carries a complement of around 100 people, including the rowers. The ront of the boat ends in a point or ip which is almost on a level with he water surface. The back, where the steersmen stand, rises in a steep curve o a height of 10 to 15 feet above the water. Thus, while the back rises high n a majestic sweep, the pointed front, practically plough the water.

Though looming large and rising high, the *Chundan* can master a speed faster than that of the *Oadi,* especially over a long distance, say, in about a mile Its steersmen, 4 to 6 in number can spur the boat into fantastic outbursts of speed-virtual leaps across the water surface. This is a feat, which calls for extra-ordinary skill and stamina from steersmen, especially the first two at the top. While the topmost steersmen, send the boat leaping, the lower steersmen keep it on the right course. The *Chundan,* in a series of such leaps, can leave every other kind of boat, far behind, at the finishing point.

The *Chundan* requires a long and fairly straight water course, wide enough to permit it, to turn around easily. Its towering height, magnificent poise and high speed, combine to make a *Chundan* race, an unforgettable spectacle.

In 1952, Prime Minister Nehru was so fascinated with the performance of the *Chundans*, that he donated a trophy and instituted a new race. The trophy has since been named *Nehru Trophy* and the race, the *Nehru boat race*. The trophy is a 1½ foot silver replica of a *Chundan*. The race is conducted in August every year. at Punnamada, near Alleppey.

Nehru Boat Race

Alleppey (Kerala) August 10, 1974

Winners

Type of boat	*Name of boat*
Chundan	1. Karichal 2. Jawahar Distance 4550 feet. Time 5m. 4 sec.
Oadi	1. Dai 2 Azhakesan

GAMES *

CRICKET

International Cricket

India, West Indies, Australia. England, New Zealand and Pakistan are the major cricket countries in the world. These countries play against one another in what are known as test matches.

India entered the test arena only in 932. Since then India has taken part in 124 test matches against all the major cricket countries till 1972 Of the 124 matches, India won 17, lost 50 and drew 57.

India gained international status in the cricket world when it defeated two major cricket countries-West Indies and England on their own soil in the same year, 971.

1. The Ashes

England-Australia Test 1972 in England. England retained the Ashes.

Teams

England: Geoff Boycott, John Edrich, Brian Luckhurst, Mike Smith, Basil D' Oliveira, Tony Greig, Alan Knott, Ray Illingworth (Captain), John Snow, Norman Gifford, John Price. Twelfth man: Bob Taylor.

Australia: Keith Stackpole, Bruce Francis, Ian Chappell (Captain), Greg Chappell, Doug Walters, Ross Edwards, David Colley, Rod Marsh, Bob Massie, John Gleeson, Dennis Lillee. Twelfth man: John Inverarity.

2 India-England (MCC) Test, 1972-73.

The England Team-Tony Lewis (Captain), Dennis Amiss, Barry Wood, Keith Fletcher, Mike Denness, Tony Greig, Alan Knott (Wicketkeeper), Peter Pocock, Derek Underwood, Bob Cottam Geoff Arnold. Twelfth man Graham Roope.

The Indian Team-Ajit Wadekar (Captain), S. M. Gavaskar, R. Parkar, D. N.

Only those tournaments and/or matches which were concluded by October end 1974, have been included here - Ed.

MONEY IS POWER WHEN YOU SAVE

It is the little drops of water that make the mighty ocean. A drop by itself is small insignificant and helpless but when drops combine together, they wield power.

And that is how we see it, beyond the realms of today, when your tomorrow should be safe and secure with the saving of to-day.

Syndicate Bank a pioneer in small saving has schemes that could persuade even the most reluctant saver to save.

Why not pay us a visit for more details?

SEEKING TO SERVE

SYNDICATE BANK

Where Service is a way of life

Head Office:
Manipal (Karnataka State)

K. K. PAI
Managing Director

CODE No. 08202

AS DURABLE AND TRADITIONAL AS

"CHARMINAR"

"SPECIFY CHARMINAR A. C. PRODUCTS AND ENSURE QUALITY AND LONGEVITY".

- NEWKOR CORRUGATED SHEETS
- FLEX-O-BOARD FOR CEILING AND PARTITIONING
- PRESSURE PIPES FOR WATER SUPPLY AND DISTRIBUTION
- CABLE DUCTS
- GUTTERS AND ACCESSORIES

MANUFACTURERS AND EXPORTERS OF PLANT & MACHINERY FOR PRODUCING A. C. SHEETS AND PRESSURE PIPES.

Manufactured to the relevant I. S. I. Specifications by:

HYDERABAD ASBESTOS CEMENT PRODUCTS LTD.

Regd. Office : SANATNAGAR, HYDERABAD 500018 (A. P.)
Factories at : HYDERABAD (A. P.) : : BALLABGARH, (HARYANA)

Sardesai, G. R. Viswanath, A.M. Mankad, F. M. Engineer, E. D. Solkar, P. Krishnamurthy, S Venkataraghavan, E. A. S. Prasanna, B. S. Bedi, B. S. Chandrasekar, Abid Ali and Chetan Chauhan.

1st Test, Delhi-Dec. 1972
England won by 6 wickets.
India 173-233 England 200-208 for 4.

2nd Test, Calcutta-Dec 1972
India won by 26 runs
India 210-155 England 174-163.

3rd Test, Madras-Jan. 1973
India won by 4 wickets
England 242-159 India 316 86 for 6

4th Test, Kanpur-Jan. 1973
Drawn
India 357-186 for 6, England 397...

5th Test, Bombay-Feb. 1973.
Drawn
India 448-244 for 5 decl.
England 480-67 for 2.

3 Australia—New Zealand

Captains. Australia- Ian Chappel; New Zealand Bevan Congdon.

1st Test
Melbourne, (January, 1974)

Australia-462 for 8 decl. New Zealand 237 and 200. New Zealand follow son.

Result. Win for Australia by an innings 25 runs.

2nd Test
Sydney. January, 1974)

New Zealand 312 and 305 for 9 decl. Australia 162 and 30 for 2. Rain spoiled New Zealand's chances of a thrilling victory.

Result. Draw.

3rd Test
Adelcide, (January, 1974

Australia 477 New Zealand 218 and 202. New Zealand follows on.

Result. Win for Australia by an innings and 57 runs. Australia win the Test series by 2 matches to nil.
New Zealand 112 and 158.

Ian did not declare the Australian 2nd innings closed at 8 for 460, because, he was sure that he could not dismiss New Zealand, on their Second Innings within the time.

HIGHLIGHTS

1st Test

Chappel Brothers Ian and Greg each scored a century in both Innings, Ian 145 and Greg 247 not out and 133. Ian and Gerg have became the first pair of brothers to score a century and double century in the same innings, not only in Test but in all first class cricket.

Congdon (New Zealand) scored a century, making up 6 Test centuries in all. He is the second New Zealander to do so, the first being John Reid, formerly New Zealand Skipper.

Ian Chappel (Australia) completed 12 test centuries while his brother Greg completed seven.

2nd Test

Glew Turner (New Zealand) scored centuries in both innings 101 for 1st and 110 not out in the second

The Hadley brothers, Richard (4 for 71) and Dayle (4 for 75) played the major role in dismissing Australia for 259.

3rd Test

Douglas Walters (Aust.) scored an unbeated 104, which included 15 boundaries. This is Walter's 11th century in tests.

Ian Redpath (Aust.) was the hero of the Test, carrying his bat through the second innings for 159 not out.

Highlights

1st Test

Melbourne. Stackpole (Aust.) scored a century 122 his seventh century in Tests. Gilmour (Aust.) captures 4 wickets for 75, Mallet (Aust) 4 for 63 and Kerry, O'Keefee 2 for 51.

2nd Test

John Parker (N.Z) scored a century 105 in the first Innings. John Morison (NZ.) scored another century.

(4) New Zealand-Australia

The Australians visited New Zealand for a return test series in March 1974.

Captains Australia Ian Chappel; New-Zealand-Bovan Congdon

1st Test

Wellington (March, 1974.) Australia/511 for 6 and 460 for 8; New Zealand/484

Result. Draw.

2nd Test

Christchurch (March 1974. Australia 221 and 330 for 9.

(5) England—West Indies

Captains, England Mike Dennerss; W. Indies-Rohan Kanhai.

1st Test

Port of Spain (Feb. 1974) England 131 and 392; Windies-392 and 132 for three.

Result. West Indies win by 7 wickets.

2nd Test

Kingston (Feb. 1974) England 353 and 432 for 9; Windies 583 for 9 decl.

Result. Draw.

**At
Your
Service**

**With 282 branches
in the States of
Karnataka, Kerala,
Tamil Nadu, Maharashtra,
Andhra Pradesh, Rajasthan,
Uttar Pradesh, Gujarat,
West Bengal, Orissa, Assam,
Punjab, Delhi, Chandigarh,
and Goa.**

VIJAYA BANK

is Proud To Be At Your Service

Correspondents world over

Vijaya Bank - Your Partner
in Progress

VIJAYA BANK LIMITED

**Regd. Office
Light House Hill Road,
BANGALORE-575003**

**Admn. Office
2, Residency Road,
BANGALORE-560025**

M. SUNDER RAM SHETTY
CHAIRMAN

3rd Test

Bridgetown (March 1974) England 395 and 72 for 4; Windies 596 for 8

Result. Draw.

4th Test

Georgetown (March 1974) England 448; Windes 198 for 4.

Rain cuts short the match

Result. Draw.

Port of Spain (April 1974) England 267 and 263; Windies 305 and 119.

Result. England win by 26 runs.

Highlights

1st Test

Port of Spain. This was West Indies first home Test victory since 1965.

2nd Test

Amiss (England) made a double century, 262 not out. Sobers (Windes) completed 8000 runs in Test Cricket.

3rd Test

Lawrence Rowe, England's opening bat made three centuries 307 runs A Kallicharan Windies) hits a century-119. Tony Gerg (Eng.) scored a century-148.

5th Test

Tony Greg (Eng) took 13 wickets for 135.

(6) India VS. M.C.C.

London (May, 1974)

M.C.C 1st innings	305 for 8 decl.
India ,,	231
M C.C 2nd innings	173 2 decl.
India ,,	136 for 3.

Three-Day Match Drawn.

Previous India-M.C.C Matches

1932: Indians 228 (C. K. Nayudu 118 n o.) drew with MCC 200 for 7 (D. R. Jardine 44, C. K. Nayudu 4 for 31) abandoned due to rain.

1936: MCC 382 (E. Hendren 88 R. E. S. Wyatt 65, J. H. Human 115, G. O Allen 54), and 36 for no loss bt Indians 185 and 230 (M. Jehangir Khan 80, Sims 4 for 68) by 10 wickets.

1946: Indians 438 (V. M. Merchant 148, V. S. Hazare 94, D D. Hindlekar 79, Wyatt 4 for 45 bt MCC 139 (L. Amarnath 4 for 41) and 105 (V Mankad 7 for 37) by innings and 194 runs.

1952: MCC 383 for 8 decl. (T. W. Graveney 158, R T. Simpson 101, Ghulam Ahmed 4 for 123) and 83 for 2 decl drew with Indians 255 (P. Roy 62, M. Hilton 4 for 36) and 188 for 3 (P. R. Umrigar 91 n. o, V. L. Manjrekar 67 n.o).

1959: MCC 37 for 4 decl. (C. Milton 104, F. R Dexter 100 n o, M J. K. Smith 82) and 120 for 1 decl. (M. J. K. Smith 64 n.o.) bt Indians 211 (C G. Borde 88, P. R. Umrigar 82, A. E Moss 4 for 41, Tyson 4 for 44) and 136 (R. Illingworth 5 for 34) won by nine wickets.

1967: Indians 134 (Pataudi 70, Price 4 for 39, Snow 5 for 38) and 108 for 2 drew with MCC 211 (C Milton 52, B. S. Bedi 4 for 58, Prasanna 4 for 94).

1971 No match.

The match between MCC and touring teams at Lord's is a 'mini Test'

The MCC have beatan Indian tourists twice, lost only once in 1946 and drawn the other three matches.

All-India School Cricket

C. K. Nayudu Trophy

Jammu. (Jan. 1974) Punjab annex the trophy, after a lapse of six years beating holders, Gujarat.

Scores. Punjab 76 and 204 Gujarat 89 and 177.

Third Place. A. P. Beat U. P. by 173 runs.

Cooche Bihar Trophy

(Inter Zonal School Cricket)

Hyderabad (Jan. 1974) East zone win the the Cooche Bihar trophy beating North zone by 5 wickets.

Inter-Varsity Cricket

Patna. (Jan 1974

Rohinton Baria Trophy

Delhi beat Bangalore by and 57 runs to claim the trophy.

Vizzy Trophy

Varsity Inter-zonal Championship

New Delhi. Feb. 1974

This championship follows the pattern of the *Dulip Trophy* regarding zonal arrangements, but is restricted to Universities within the zones (see) Dulip Trophy for zones).

In the semifinals, West zone wrapped up east zone by an innings victory and North zone disposed of South zone in the same manner. North zone had previously reached the final three times. But it lost to West zone in 1968-69 to East zone 1969-70 and to South zone in 1970-71. In 1973-74 North zone claimed the tittle.

Score

West zone	199 and 148
North zone	344 and 5 for no loss.

THE KERALA STATE CASHEW DEVELOPMENT CORPORATION LIMITED

QUILON

Grams: "KASUVANDI"
Telex : 088/204
Phone: 3771, 3772, 3773
and 4102

We serve the country:

by being the largest Exporter of Cashews
by being the biggest employer in Kerala
by earning more than Rs. 15 crores in Foreign Exchange
by being a Model Employer
by being a profitable Public Sector Undertaking

All these possible since about 32,000 people give their sincere service to us.

Our expansion envisages profitable employment to many thousands more.

DEDICATED TO THE CAUSE OF THE NATION

WE MARCH FORWARD

WE MANUFACTURE 40s AND 60s YARN
IN
HANKS AND CONES

DEPENDABLE, DURABLE & SATISFYING
OUR YARN IS THE SECRET BEHIND
YOUR GOOD WEAR

TRIVANDRUM SPINNING MILLS LTD.

(A Kerala Govt. Undertaking)

BALARAMAPURAM

Managed By: K. S. T. C. LTD.
General Manager: C. M. FRANCIS

Gram : 'SUPERSPIN' Phone: Residence: TVM. 60667
Telephone : 24 & 34. Factory - 64 BALARAMAPURAM.

WOMENS' CRICKET

World Cup Tournament

Edgbaston, July 1973

The inaugural Women's World Cup Tournament was held in Edgbaston, Birmingham, England, in June-July 1973. Seven teams participated: (1) England, (2) Young England, (3) Australia, (4) New Zealand, (5) Jamaica, (6) Trinidad and Tobago and (7) International XI.

Each team played all others in limited overs games on a league basis, each side batting for 60 overs. The final was played Edgbaston on July 26. England beat Australia by 92 runs.

Scores: (when 60 overs were completed)

England 279 for 3
Australia 187 for 9

NATIONAL WOMENS' CRICKET

Varanasi, Feb. 1974

Nine teams participated in the Second National Women's Cricket—Bombay, last year's title holder, Maharashtra last year's runners up, West Bengal, Tamil Nadu, UP, Punjab, MP. Karnataka and Bhundelkhand.

West Bengal beat Karnataka in the final, after having disposed of holders, Bombay in the quarter final and Tamil Nadu in the semi-final.

The match was restricted to 25 overs.

NATIONAL CRICKET CHAMPIONSHIP

(Instituted in 1934)

Ranji Trophy

Madras-April 1973

Bombay annex trophy for the 15th time in succession beating T. Nadu by 123 runs.

Scores: Bombay 151 and 113
T. Nadu 80 and 61

Rohinton Baria Trophy

Intervarsity Cricket Trophy instituted in 1935

Jammu, Jcn. 1973

Madras University won the trophy on their 27-run first innings lead over Delhi. Madras bagged the trophy first in 1970-71.

Zonal Championship

The country is divided into five zones.

1 *North*—Delhi, Punjab, Haryana, J & K., Services and Railways.
2 *South*—Myrore, Hyderabad, T Nadu, Andhra and Kerala.
3 *West*—Bombay, Maharashtra, Baroda, Gujarat and Saurashtra.
4 *Central*—Rajasthan, M P, Vidarbha and UP.
5 *East*—Bengal, Bihar, Orissa and Assam.

Vizzy Trophy

Zonal Championship Poona—Feb. 1973.

West zone, last year's holders retain the trophy beating East Zone by an innings and 299 runs.

Cooch Behar Trophy

Calcutta - Jan. 1973

South Zone lifted the Cooch-Behar trophy for the 4th time, with 8 wicket victory over W. Zone.

Irani Cup Match

Ahmedabad, Oct. 28, 1974

The Irani Trophy was won by Karnataka (Captain E. A. S. Prasanna) Ranji champions against the Rest of India (Captain M.A.K. Patawdi). The match ended in a draw but Karnataka was awarded the trophy, on the ground of its first innings lead of 52 runs.

Scores: Karnataka 359 & 314 for 2 decl
Rest of India 307 & 214 for 3

Dulip Trophy

Hyderabad, Oct. 20. 1974

South Zone claimed the Dulip Trophy beating West Zone by 9 wickets, 10 minutes before lunch on third day of the four day final. South Zone had won the trophy four times previously, the last time being 1970-71.

Scores: West Zone 102 and 147.
South Zone 231 and 19 for 1.

The longest Set in Davies Cup—Little Rock (U. S. A.)

The US (Stan Smith and Van Dillen) and Chile (Jaime Fillol and Pat Cornejo) battled for six hours on Aug. 5, 1973 in an unfinished match. 9-7, 39-37. 6 8, 1-5. The second set of the match 39 37 is the longest set in Davis Cup history and covered 3 hrs. 45 min.

NEW STRATEGY IN FARM FRONT

Animal and human toils were once the only way.
Luckily that is no longer true.
Labour Saving, Diesel Power has revolutionised farming
Made it far more productive, less of a Struggle
Our Kubota Diesel Power Tillers finish work fast and easy.

Kubota can be efficiently sized to work requirements.
Diesel Power quickly pays for itself in time saved
and increased harvest yield.

Proven Kubota versatillers make farm life easier,
Profitable agriculture

Buy Kubota for increased output and for maximising farm products.

For Details contact:

KERALA AGRO MACHINERY CORPORATION LTD.

P. O. ATHANI, VIA. ANGAMALY SOUTH,
ERNAKULAM DISTRICT, KERALA.

And Also the Local Offices of the KERALA AGRO INDUSTRIES CORPORATION LTD., at TRIVANDRUM - KOTTARAKKARA - THIRUVALLA - VAIKOM - TRICHUR - PALGHAT - KASARAGOD - AND SULTANS BATTERY.

HOCKEY

Olympic Hockey. Hockey was introduced in the Olympics in 1908 when England won the gold medal.

The tournament was not held in the 1912 and 1924 Olympics. The Games for 1916, 1940 and 1944 could not take place owing to the two world wars.

The following table gives the first three placings in all the Olympic hockey championships.

Year	*I*	*II*	*III*
1908	England	Ireland	Scotland Wales
1920	Britain	Denmark	Belgium
1928	India	Nerherlands	Germany
1932	India	Japan	USA
1936	India	Germany	Netherlands
948	India	Britain	Netherlands
1952	India	Netherlands	Britain
1956	India	Pakistan	Germany
960	Pakistan	India	Spain
1964	India	Pakistan	Spain
1968	Pakistan	Australia	India
1972	W.Germany	Pakistan	India

The first time that India participated in International Hockey was in the 1928 Amsterdam Olympics. India has been a regular participant in the Olympics ever since.

India and Olympics. The results of the Olympic games in which India participated are given below:

Year	*Place*	*Captains*	*Result*
1928	Amsterdam	Jaipal Singh (Bengal)	India won
1932	Los Angeles	Pankaj Gupta (Bengal) (nonplaying Captain)	India won
936	Berlin	Dhyan Chand (Services)	India won
1948	London	Kishen (Rlys)	India won
1952	Helsinki	K. D. Singh Babu (UP)	India won
1956	Melbourne	Balbir Singh (Punjab)	India won
1960	Rome	L. Chandins (Bengal)	India beaten (0-1) Pakistan won
1964	Tokyo	Charanjith Singh (Punjab)	India won
1968	Mexico City	Gurubaksh & Prithipal Singh (Joint Captains)	Only 3rd place for India
1972	Munich	Harmik Singh	3rd place

WORLD CUP

The World Cup for hockey was inaugurated in 1971, at Barcelona in Spain. In the inaugural meet, the finalists were India and Pakistan. Pakistan won the trophy.

Amsterdam-Sept. 2, 1673

Holland claimed the gold medal beating India in a tie-breaker game, 6 4. India won the Silver. West Germany claimed the Bronze, beating Pakistan 1 0

NATIONAL HOCKEY

Rangaswamy Cup

38th National Hockey Championship

Bombay, April, 1973.

Services annexed *The Rangaswamy Cup* with an aggregate lead of 2 1 over the *Railways*.

The following are the previous winners and runners-up of the National Hockey Championship:

Year	*Venue*	*Winners*	*Runners-up*
1928	Calcutta	United Provinces	Rajputana
1930	Lahore	Combined Railways	Punjab
1932	Calcutta	Punjab	Bengal
1934	No competition		
1936	Calcutta	Bengal	Manavadar
1938	Calcutta	Bengal	Bhopal
1940	Bombay	Bombay	Delhi
1942	Lahore	Delhi	Punjab
1944	Bombay	Bombay	Gwalior
1945	Gorakhpur	Bhopal	United Provinces
1946	Calcutta	Punjab	Delhi
1947	Calcutta	Punjab	Delhi
1947	Bombay	Punjab	Bombay
1948	Bombay	Bhopal	Bombay
1949	Delhi	Punjab	Bengal
1950	Bhopal	Punjab	Bhopal
1951	Madras	Punjab	Services
1952	Calcutta	Bengal	Punjab
1953	Bangalore	Services	Punjab
1954	Hyderabad	Punjab	Services
1955	Madras	Services and Joint	Madras holders
1956	Punjab	Services	Uttar Pradesh
1957	Bombay	Railways	Bombay
1958	Bombay	Railways	Bombay
1959	Hyderabad	Railways	Services
1960	Calcutta	Services	Uttar Pradesh
1961	Hyderabad	Railways	Punjab
1962	Bhopal	Punjab	Bhopal
1963	Madras	Railways	Services

VISIT TRIVANDRUM

The veritable show piece of urban cleanliness
BETTER SPENT & BETTER GAINED

Beautiful Scenery, Invigorating Air and Friendly People
Make Trivandrum an Ideal Vacation Spot

THE ANANTHASAYANAM TEMPLE OF FAME
THE KOVALAM BAY OF CHARM & ENCHANTMENT
THE MAJESTIC SECRETARIAT BUILDINGS
THE WORLD FAMOUS AQUARIUM &
THE MANY IMPOSING STRUCTURES ARE
BUT A FEW PLACES OF INTEREST IN THE CITY

Whenever you are at Trivandrum
Choose The Corporation Rest House for your short stay.
It is near to Railway Station.

CORPORATION OF TRIVANDRUM

KERALA CERAMICS

A name that means quality
in homes and industries

To housewives and hoteliers
Kerala Ceramics means good design
and quality in crockery
To Industrialists

Kerala Ceramics means technical
expertise and quality in High Grade,
Spray dried paper coating Kaolin
and other grades of China Clay

THE KERALA CERAMICS LTD.

(A subsidiary of Kerala State
Industrial Enterprises Ltd.)
KUNDARA 691501.
Kerala

1964	Delhi	Railways	Services
1965	Bombay	Punjab	Bombay
1966	Poona	Railways and Services Joint-holders	
1967	Madurai	Madras and Railways Joint-holders	
1968	Ootacamund	Railways	Mysore
1969	Kerala	Punjab	Railways
1970	Punjab	Punjab and Railways Joint holders	
1971	Bangalore	Punjab	Bombay
1972	Jullundur	Punjab	Railways

Women's World Hockey Cup

Mandelieu (France) March, 1974

Holland annexed the championship and became the first winner of the Women's World Hockey Cup when they defeated Argentina in a cliff-hanger final stretched on to extra time. West Germany finished 3rd, beating India to the 4th place by 2-0 France defeated Austria by 1-0 to claim the seventh place leaving Austria the eigth. The ninth and tenth places went to Switzerland and Mexico respectively.

Bombay Gold Cup

Bombay, April 1974

Border Security Force (B.S.F) Jullundur, holders retained the Gold Cup beating the Army Supply Corps (A.S.C) Meerut by 2 goals to nil. B.S.F. scored 1 goal each in the double-leg final.

Beighton Cup

Calcutta, May 1974

Mohan Bagan retain the cup beating Sikh Regimental Centre (S.R C) Meerut, by a lead of 2 1 in the first leg. The second leg ended in a goalless draw. Mohan Bagan was joint winners with I.H.F. Dark Blues XI last year.

Inter University Hockey

Raipur, Jan. 1973 15

Bombay won the all-India Inter University Cricket title by gaining 5 points. Guru Nanak with 4 points take the second place, Ravi Shankar third and Madura 4th.

India Vs. Poland

Hockey Test Series

1st Test	Madras	India win	3 0
2nd Test	Bangalore	,,	,,
3rd Test	Hyderabad	,,	3 1
4th Test*	Nagpur	,,	5-0

* Fifth and Sixth tests cancelled.

FOOTBALL (SOCCER)

WORLD CUP

The Jules Rimet Trophy, named in honour of Jules Rimet, a Frenchman, who took the lead in organising international competition in football had been the symbol of world soccer supremacy for the last 40 years. On June 21, 1970 Brazil defeated Italy in the final of 9th World Cup Soccer by 4 goals to 1 and thus became the permanent possessors of the Jules Rimet Trophy. The Jules Rimet Trophy under the rules, would go to the country that won the trophy three times. Brazil won the trophy previously in 1958 and 1962 and with their 1970 win they became entitled to the permanent possession of the trophy.

Only five nations have won the World Cup tournament which like Olympics is held once every four years, from 1930. Only 9 competitions have been held until 1970. The list of winners since 1930:

1930—Uruguay, 1934—Italy, 1938—Italy, 1950—Uruguay, 1954—West Germany, 1958—Brazil, 1962—Brazil, 1966—Britain and 1970—Brazil.

The International Federation of Football Associations (F I F A) who is conducting the World Cup tournament, has instituted a new trophy in the place of Jules Rimet Trophy. The new trophy will be named 'The World Cup of Association Football'. The cup will remain the property of the FIFA and every winner in future will keep a replica of it with its country's name engraved at the bottom.

Munich, July 1974

West Germany won the World Cup beating Holland 2-1. Johnny Neeskins sent Holland into the lead with a penalty in the first minute. Paul Breitner for Germany equalised with a Penalty kick in the 25th minute. Gerard Muller, scored the winner for Germany in the 43rd minute.

2nd Place- Runners up-Holland.

3rd Place Poland defeated Cup holders Brazil 1-0, for the third place. Lato (Poland) scored the lone goal in the 74th minute.

We know your job is far too big; we also know you need the right kind of information at the right moment. Here is then the book you are looking for:

THE KOTHARI'S ECONOMIC

&

INDUSTRIAL GUIDE OF INDIA

1975

Price Rs. 100/-a copy (exclusive Rs. 12/- for packing and postage).
Export price:£12/- or (US) $30/- - (Postage FREE by surface mail).

A treasure house of information, leaving out almost nothing of importance to a leader of industry and commerce-Alphabetically arranged sections on the working of more than 4,000 major industrial companies-economic & industrial surveys–rules covering taxation, company law issues, investment information, collaboration, licensing rules etc. etc., in a format you will like-prepared by a team of competent staff for an industrial house of All-India repute. A House well-known among the top men in international Industry and Trade.

MAIL YOUR ORDER TO:

M/s. KOTHARI & SONS
Publication Dept.
20 Nungambakkam High Rd.
MADRAS-34

M/s. KOTHARI & SONS
"French Bank Building"
62 Homji Street, Fort
BOMBAY-1

Fair Play Trophy

West Germany wins the Fair Play Trophy of the World Cup Soccer, also. Out of a possible total of 35 points, W. Germany got 32-three points being deducted for three warnings to German players by referees. Poland came second with 30 points and Holland were third with 2.

Olympic Soccer

List of Olympic Football winners is given below:

1908—Britain, 1912—Britain, 1920 Belgium, 1924—Uruguay, 1928—Uruguay, 1936—Italy, 1948—Sweden, 1952—Hungary, 1956—Russia, 1960—Yugoslavia, 1964 Hungary, 1968—Hungary.

In 1972 Olympics at Munich, Poland defeated Hungary by 2 goals to 1. Hungary had remained unbeaten since Tokyo Olympics in 1964. Placings were as follows: 1. Poland 2. Hungary 3. Soviet Russia and East Germany.

Asian Youth Football Tournament (11th Meet)

Bangkok, April 1974

India entered the final with a 2-1 upset victory over highly fancied Thailand.

India and Iran became joint champions battling the Cup final to a 2-2 draw.

Iran won the tournament for the first time last year in Teheran beating Japan 2-0 in the final. India reached the cup final for the first time this year.

South Korea beating Thailand 2-1 took the third place.

National Football

Santosh Trophy

Santosh Trophy was organised as an Inter-State National Tournament in 1941. Railways and Services take part in the tournament along with State teams.

Year	*Winners*	*Runners-Up*	*Venue*
1941	Bengal	Delhi	Calcutta
1942-43	(Not held)		—
1944	Delhi	Bengal	Delhi
1945	Bengal	Bombay	Bombay
1946	Mysore	Bengal	Bangalore
1947	Bengal	Bombay	Calcutta
1948	(Not held)	—	—
1949	Bengal	Hyderabad	Calcutta
1950	Bengal	Hyderabad	Calcutta
1951	Bengal	Bombay	Bombay
1952	Mysore	Bengal	Bangalore
1953	Bengal	Mysore	Calcutta
1954	Bombay	Services	Madras
1955	Bengal	Mysore	Ernakulam
1956	Hyderabad	Bombay	Trivandrum
1957	Hyderabad	Bombay	Hyderabad
1958	Bengal	Services	Madras
1959	Bengal	Bombay	Nowgong
1960	Services	Bengal	Calicut
1961	Railways	Maharashtra	Bombay
1962	Bengal	Mysore	Bangalore
1963	Maharashtra	Andhra	Madras
1964	Railways	Bengal	Gauhati
1965	Andhra	Bengal	Quilon
1966	Railways	Services	Hyderabad
1967	Mysore	Bengal	Calcutta
1968	Mysore	Bengal	Bangalore
1969	Bengal	Services	Nowgong
1970	Punjab	Railways	Madras
1971	Bengal	Railways	Madras
1972	Bengal	T. Nadu	Goa
1973	Kerala	Railways	Cochin

Jullundur, Nov 24, 1974

Host Punjab won beating Bengal 6-0. Punjab won previously in 1970.

All India Intervarsity

Raipur, Oct. 16, 1972

Burdwan won the All-India Inter-varsity football tournament after a walk-over win against Bombay, Calicut became the runner-up, after it drew with Guru Nanak 1-1, on a points basis. Burdwan secured 6 points, Calicut 3, Bombay 2 and Guru Nanak 1.

Durand Trophy

New Delhi, Jan. 1973

Border Security Force (Jullundur) beat Rajasthan Armed Constabulary 2-1 in the final of the Durand Cup.

B S F (Jullundur) first won the cup in 1971 R A C (Bikaner) was making their maiden appearance in the final.

Teams

BSF: Madan Mohan, Raghbir Singh, Lehmber Singh, Harbhajan Singh and Ravinder Singh, Kesho Kirpal Singh and Ajaib Singh, Nand Kishore, Manjit Singh Prem Dass and Nazar Singh.

RAC: Jonney, Andrews, Bhoor Singh, Megh Singh and A Majeed; Satya Prakash and Ram Singh (Inder Singh); Chain Singh, Magan Singh, Devi Singh (Brijmohan Singh), and Prahlad Singh.

SMALL SAVINGS CERTIFICATES

available in denominations
of Rs. 10/- to Rs. 1,000/-
Period 2 years - Interest 8½%

Besides being an attractive Savings Scheme it is an ideal present for Marriage, Birthday and other special occasions.

Available from
all our 110 branches in
KERALA, TAMILNADU, KARNATAKA
AND MAHARASHTRA

⁂

THE CATHOLIC SYRIAN BANK LTD.
Regd. Office - TRICHUR

HINDUSTAN INSECTICIDES LIMITED
(A Government of India Enterprise)
Udyogamandal P. O., Kerala State
Regd. Office : New Delhi - 110024

We manufacture Insecticides and Chemicals like

TECHNICAL DDT — **FORMULATED DDT**
PARA DCB — **MONOCHLOROBENZENE**
ORTHO DCB — **CHLORAL**
TECHNICAL BHC AND FORMULATED BHC

Factories:
New Delhi and Udyogamandal, Kerala

Rovers Cup

Bombay, Feb. 1974

East Bengal Club Calcutta retained the Rovers Cup football trophy beating local champion. Tata Sports Club, 3-2 after leading 2-1 at half time.

East Bengal was making its ninth appearance in the final of this tournament and winning the trophy out-right for the fifth time Last year it shared the Cup with another Calcutta Club, Mohun Bagan.

Dr. B. C. Roy Trophy

Junior National Football Championship

Krishnanagar (Bengal), May 1974

Kerala (holders) retained the trophy beating Andhra by 1 0 in the Junior National Football Championship.

Kerala first won the trophy sharing it with Orissa in 1969.

Kerala Football Association

(K.F.A.) Shield

Changanacherry, Kerala May, 1974

FACT, Alwaye (a Kerala team) won the K. F. A Shield beating Premier Tyres, Kalamassery (also a Kerala team) by one goal to nil Mani, Captain of FACT scored the vital goal in the 11th minute of the second half.

Mani, it may be recalled distinguished himself by scoring three winning goals for Kerala in the last Santosh final at Cochin.

C. V. Raja Trophy

Trivandrum, June 1974

Travancore Titanium Products, Trivandrum, annexed the Godavarma Raja Trophy beating Border Security Force by 2 1.

TENNIS

The Grand Prix

The Grand Prix (the great prize) according to Jack Kramer, "is an international lawn tennis competition for men and ladies who earn points by success in the world's leading tournaments, including all the major championships".

The Grand Prix idea was initially sponsored by professional tennis players. Jack Kramer, who won the Wimbledon in 1947 and turned pro afterwards, is the leading advocate of the Grand Prix. He is backed up by professional associations like the *World Team Tennis* (W. T. T.), *The World Championship Tennis* (W. C T) and the *Association of Tennis Professionals* (A T P)

The very fact that the Grand Prix was sponsored by professionals made it distasteful to amateurs. The amateurs led by the *International Lawn Tennis Federation (ILTF)* opposed the idea and an open war ensued. Players, who belonged to professional associations, were barred from participating in amateur tournaments like Wimbledon John Newcombe, for example who won the Wimbledon in 1971 (as an amateur) was not allowed to defend his title in 1972, because he had turned professional and joined the *World Championship Tennis* group. Thus, the struggle continued. But very soon, the amateur associations realised that they were fighting a losing battle. Most of the world's leading players supported the Grand Prix. Many of them, in fact, signed up with professional associations. It looked as if, amateur tournaments will have to make do with second-rate players. This contingency forced the ILTF to retreat.

From 1968, the major tournaments of the world, including Wimbledon, was one by one, thrown open to professionals This marked the end of the fight between professionals and amateurs Though peace has been established between amateurs and professionals, international tennis is still in a state of flux. First, the inter-association rivalries still continue John Newcombe could not compete for 1973 Wimbledon, because he had to support ATP players, who boycotted Wimbledon, on a point of honour. Secondly, the programmes of various associations still clash. Kramer's World Team Tennis players were contesting on a league basis in USA, when the Italian and French Championships opened in Europe. Troubles of this sort, will keep cropping up, for some time; more, until world tennis is re established on the new foundations.

A Revolutionary Idea

The Grand Prix is revolutionary development in two ways. (1) It has converted tennis into a money earning profession. The back bone of future tennis is the *prize money system*. (2) The Grand Prix assumes that world championship should not be made to rest on a player's success in a tournament or two. The world champion should prove his mettle in a succession of matches, with different players. This is ensured by the *points system.*

SAIL INTO A GLORIOUS FUTURE...

Renowned the world over as "Queen of the Arabian Sea", Cochin is the most beautiful natural harbour with modern port and shipping facilities for all types of cargo to and from every important port of the world. We don't stop with the present . . . we plan to usher in most modern port services of international standard by providing facilities for container ships, super tankers and bulk carriers.

COME -- SHIP WITH US... WE PROMISE TO SAIL YOU TO A GLORIOUS FUTURE.

★

COCHIN PORT TRUST

COCHIN-3

(i) Prize Money

The prize money for all tournaments is generally provided by commercial firms or other outside agencies and sometimes by the associations themselves.

The gradation of tournaments in Grand Prix depends on the prize money. In 1973, tournaments were divided into 4 classes—AA, A, B and C-on prize money basis. In 1974, a fifth class was added–the Triple Crown. This comprises the championships of Wimbledon (British), Forest Hills (US) and Paris (French). The Australian championship, which was on a par with Wimbledon, Forest Hills and Paris tournaments, in the old amateur days, has now been degraded to the second rank and comes in Class AA. This is primarily because the Australian championship offers poor prize money compared to what Wimbledon, Forest Hills or French championship promises.

Money has thus become the acid test of the status of a tournament. Formerly, it was the participation of reputed players that decided 'the class' of a tournament-players like Bill Tilden and Helen Wills Moody of USA, the 'Three Musketeers, and Suzanne Lenglen of France, F. J. Perry of Britain or Jack Crawford of Australia. These players and others like them, have built up the four great international tennis tournaments of the World - Wimbledon, Forest Hills, French and Australian championships. These four titles together constituted the Grand Slam, the highest distinction in tennis

To day, the Australian championship has been down-graded and Australia has been unceremonialy pushed down the ladder, despite the crop of champions it has brought forth in recent times-Roy Emerson, Ken Rosewall, Rod Laver, John Newcombe, Margaret Court and Evonne Goolagong. On the other hand, France, which has produced no outstanding players, since the days of Lacoste and Lenglen still remains at the top of the ladder. And all, because of prize-money.

The prize money for a tournament in the Triple Crown class is expected to be betweeen £50,000 and 100,000. AA class carries about £40,000, A 30,000, B 20,000 and C 10,000.

The money is divided between winners and losers in fixed proportions. The Wimbledon prize money in 1973, for example, was divided as under.

1. Jan Kodes (Czech) winner £5,000.

2. Alex Metrevelli (Russia) Runner up £ 3,000*.

3. Roger Taylor (Britain) and Alex Meyer (US) Semi-final losers. £ 1,000 each.

4. Jim Connors (US) Jurgens Fassbender (W.Germany), Bjorn Borg (Sweden) and Vijay Amritaraj (India) Quarterfinal losers £ 550 each.

The total prize money estimated for all the tournaments is colossal-one and a half million pounds. The Wimbledon itself may provide as much as £ 100,000.

Prize money Earners

The biggest prize money earner, among men, so far, is Rod Laver, who has amassed upwards of a million dollars. The prize-money earned by Newcombe in 1974 came to about £ 70,000.

Among women, Billie Jean King, triple winner at Wimbledon in 1973, leads with an earning of £173,480 for the short period, that she has been a professional.

(ii) POINTS

Points are awarded for each tournament according to its class. Losers down to the 64th round are allocated points. Besides these points, bonus points are awarded for Davis Cup finalists and Inter-zone finalists.

Table of Points

Players Category	*Classes*				
Men's Singles	*Triple Crown*	*AA*	*A*	*B*	*C*
Winner	120	80	60	40	20
Runner-up	90	60	45	30	15
Losing Semi finalists	60	40	30	20	10
Losing Quarter-finalists	30	20	15	10	5
Losers in round of 16	15	10	7	5	3
,, ,, 32	7	5	3	—	—
,, ,, 64	3	—	—	—	—
Men's Doubles					
Winners (Each)	24	16	12	8	4
Runner-up (Each)	18	12	9	6	3
Losing semi-finalists	12	8	6	4	2
Losing quarter finalists	6	4	3	2	1
Losers in round of 16	3	2	—	—	—
Losers in round of 32	1	—	—	—	—

---

* Metrevelli being a Russian did not get a penny of the prize money he received. It went to the Soviet Government. Similarly, Jan Kodes, a Czech, had to surrender 20 per cent of his prize money to the Czech government.

CANARA BANK CAN HELP YOU TO BE SELF-EMPLOYED

Over the years, Canara Bank has built up a fine tradition of helping experienced and enterprising people who have a desire to be self-employed or those who wish to expand or improve their existing business.

We have schemes for Doctors, technically qualified Engineers, artisans and other type of entrepreneurs who wish to set up some enterprise of their own.

For details, please call on our Branch nearest to you.

CANARA BANK

Head Office: BANGALORE-2.

IN THE SERVICE OF THE PEOPLE

With best compliments from:

**THE KERALA STATE
COIR CORPORATION LIMITED**

(A Government of Kerala undertaking)

Manufacturers and Exporters of all kinds of Coir Mats, Matting, Coir yarn, Carpet, Rugs, Car Mats etc. etc.

**Post Box No. 191
ALLEPPEY
Kerala.**

Telegram: 'PROCOIR'

**Telephone : 3908
Mg. Director : 3142
,, (Res.) : 2248
Business Manager (Res.) 3034**

(iii) Inauguration

The Grand Prix was inaugurated in 1970. It caught on fast. The number of tournaments entered for the Grand Prix, has been increasing steadily. It has jumped from 31 in 1973 to 53 in 1974.

Winners

Cliff Richey (US) won the Grand Prix in 1970, Stan Smith (US) in 1971 and Ilie Nastase (Romania) in 1972 and 1973, and G. Vilas (Argentina) in 1974.

DAVIS CUP

Davis Cup, donated by Dwight F. Davis of USA in 1900 is the outstanding international tennis event. Except for 1901 and 1910 when there were no challengers and between 1915 18 and 1940-45 when the world wars intervened, the competition has been held year after year. USA and Britain alone contested for the first three years. Belgium and France entered the competition in 1904 and Australia in 1905. Seven countries competed in 1913. By 1921, almost all the leading countries entered the arena. Till 1972 the competition was open only to amateurs. In 1973, professionals were also admitted.

List of winners and respective years are given below:

America 1900, 1902, 1913, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1937, 1938, 1946, 1947, 1948, 1949, 1954, 1958, 1963, 1968, 1969, 1970, 1971, 1972.

Australia. 1907, 1908, 1909, 1911, 1914, 1919, 1939, 1950, 1951, 1952, 1953, 1955, 1956, 1957, 1959, 1960, 1961, 1962, 1964, 1965, 1966, 1967, 1973.

Britain, 1903, 1904, 1905, 1906, 1912, 1933, 1934, 1935, 1936.

France 1927, 1928, 1929, 1930, 1931, 1932.

Cleveland, Ohio Dec- 1973, Australia won the Davis Cup for the 23rd time, beating USA 5-0. USA has won the Cup 24 times, Britain 9 times and France 6 times. No other nation has won the Davis Cup, since it started in 1900.

Scores

Singles. Rod Laver (Aus) beat Tom Gorman (US) 8-10, 8-6, 6-8, 6-3, 6-1.

John Newcombe (Aus) beat Stan Smith (US) 6-1, 3-6, 6-3, 3-6, 6-4.

Doubles. Laver and Newcombe (Aus) beat Smith and Van Dillen (US) 6-1, 6-2, 6-4.

Reverse Singles. Newcombe (Aus) beat Tom Morgan (US) 6-2, 6-1, 6-3.

Laver (Aus) beat Stan Smith (US) 6-3, 6-4, 3 6, 6-2.

India and Davis Cup

1966: India beat Brazil in the Inter-Zone final at Calcutta 3 2, and lost to Australia in the challenge round 1-4.

1967: India lost to South Africa in the Inter-Zone semifinal at Barcelona 0-5.

1968: India lost to the United States in the Inter Zone final at San Juan 1 4.

1969: India lost to Romania in the Inter-Zone semi final at Bucharest 1-4.

1970: India beat Australia in the Eastern Zone final 3-1 (last match was unfinished) and lost to West Germany in the Inter-Zone semifinal at Poona 0 5.

1971: India beat Japan in the East Zone final at Tokyo 3 2 and lost to Romania in the Inter Zone final a Delhi 1-4.

1972: Australia beat India in East Zone finals at Bangalore by 5 matches.

EASTERN ZONE FINALS

Calcutta, May 1974

India won the East Zone Final beating Australia 3 2. This is the second time that India has humbled Australia, the previous one being the 3 1 victory at Bangalore in 1970.

India has thus qualified for the Inter-Zone Semi-final and is to meet European 'B' zone winners.

Score:-

1. Jasjith Singh (India) beat R. Giltinan (Australia) 11-9, 9 11, 12 10, 8-6.

2 J. Alexander (Australia) beat Vijay Amrutaraj (India) 14 12, 7-15, 6-8, 6-2.

3. Vijay and Anand Amirtaraj (India) beat John Alexander and Colin Dibly (Australia) 17-15, 6-8, 6 3, 16-8, 6 4.

4. Vijay Amrutaraj (India) beat R. Giltinan (Australia) 6 1, 5-7, 6-4, 6-4.

5. John Alexander (Australia) beat Jasjit Singh (India) 8 6, 6-4, 6 3.

Inter Zone Semi Finals

Poona, Sept. 22, 1974

India beat Russia

Metreveli (Russia) bt. Anand Amrutaraj (India) 6-4, 9 7, 6-3.

Vijay Amrutaraj (India) bt T.Kakuha (Russia) 6-4, 11-9, 6-3.

Anand (India) bt. T. Kakulia, 6-2, 8 10, 4-6, 6-3, 6 3.

Vijay and Anand (India) bt. A. Metrevelli and V. Korotokov 13-5, 7-5, 19-7, 6-3. (unfinished)

Vijay bt. Metrevelli 6 2, 4-6, 2 6, 6 1 (unfinished)

FOR EXQUISITE CARVINGS IN

IVORY
ROSEWOOD
SANDALWOOD
HORN

AND BEAUTIFUL CRAFT ITEMS IN

KORAGRASS
SCREWPINE
BAMBOO
STRAW
COCONUT SHELL
JEWELLERY

AND

FOR ALL VARIETIES OF ELEGANT HANDLOOM FABRICS AND CROCKERY

VISIT OR CONTACT:

1	S M.S. M. INSTITUTE	TRIVANDRUM	Phone	3298
2	'KAIRALI'	77. T. C Building, Janpath NEW DELHI	Phone	40881
3	'KAIRALI'	Nirmal, Nariman Point BOMBAY	Phone	253977
4	'KAIRALI'	32/1, Mount Road MADRAS	Phone	87830
5	'KAIRALI'	12/210 Mettupalayam Road COIMBATORE	Phone	22253
6	'KAIRALI'	Commercial Road OOTACAMUND	Phone	2911
7	'KAIRALI'	M. G. Road, Ernakulam COCHIN-16	Phone	34507
8	'KAIRALI'	M. G. Road, Statue TRIVANDRUM	Phone	60127
9	'KAIRALI'	Near Taj Mahal AGRA	Phone	62893
10	STATE EMPORIA COMPLEX	Baba Khanaj Singh Marg NEW DELHI	Phone	44597

EMPORIA OF

HANDICRAFTS DEVELOPMENT CORPORATION OF KERALA LTD. **TRIVANDRUM.**

Grams: 'KALAKERAL' Phone: 3358 & 3359

TRADE ENQUIRIES SOLICITED
EXPORT ORDERS EXECUTED

Zone Final, 1974

India having won the Inter-zone final was to meet South Africa, who was the European 'B' zone finalist. But India declined to play against South Africa, on account of her racist policies. So, South Africa was declared winner of the Zone finals.

WIMBLEDON 1974

Men's Singles

Jimmy Cannors (US) beat Ken Rosewall (Australia) 6-1, 6-1, 6-4. Ken Rosewall had reached Wimbledon finals 4 times before but had always been unlucky in the finals. Cannors (21) is one of the youngest Wimbledon champions.

The youngest to win the championship are Wilfred Baddely (1891) and Ellsworth Vinnes (1931). Both of them were 19. Lew Head (1956) and Jimmy Cannors (1974) fall into the next youngest age group 21.

Women's Singles

Chris Evert (US) beat Mrs. Olge Morozova (Russia) 6 0, 6 4 to win the title. Chris Evert, (19) one of the youngest Wimbledon women champions.

Cannors and Evert are engaged.

Previous Winners

Wimbledon Champions

Year	*Men*	*Women*
1877	S. W. Gore	...
1878	P. F. Hadon	...
1879	J.T. Hartley	...
1880	J.T. Hartley	...
1881	W. Renshaw	...
1882	W. Renshaw	...
1883	W. Renshaw	...
1884	W Renshaw	Miss Maud Watson
1885	W. Renshaw	,, ,,
1886	W. Renshaw	,, B. Bingley
1887	H. F. Lawford	,, L. Dod
1888	W. Renshaw	,, ,,
1889	W. Renshaw	Mrs. G. W. Hillyard
1890	W. J. Hamilton	Miss L. Rice
1891	W. Baddeley	,, L. Dod
1892	W. Baddeley	,, ,,
1893	J. Pim	,, ,,
1894	J. Pim	Mrs. G. W. Hillyard
1895	W. Baddeley	Miss C. Cooper
1896	H. S Mahany	, ,,
1897	R. F. Doherty	Mrs C. W. Hillyard
1898	R. F. Doherty	Miss C. Cooper
1899	R. F. Doherty	Mrs. C W. Hillyard
1900	R. F. Doherty	,, ,,
1901	R. F. Doherty	,, A. Sterry
1902	A. W. Gore	Miss M. E. Robb
1903	H L. Doherty	,, D. K. Douglas
1904	H. L. Doherty	,, ,,
1905	H. L. Doherty	,, M. Sutton
1906	H. L. Doherty	Miss D. K. Douglas
1907	N. E. Brookes	,, M. Sutton
1908	A. W. Gore	Mrs. A. Sterry
1909	A. W Gore	Miss D. P. Boothby
1910	A. F. Wilding	Mrs. Lambert Chambers
1911	A. F. Wilding	
1912	A F. Wilding	D. R. Lordcome
1913	A. F. Wilding	Lambert Chambers
1914	N. E. Brookes	,, ,,
1919	G. L Patterson	Miss S Lenglen
1920	W. T. Tilden	,, ,,
1921	W. T. Tilden	,, ,,
1922	G. L. Patterson	,, ,,
1223	W. M. Johnston	,, ,,
1924	J. Borotra	Miss K. Metane
1925	R. Lacoste	,, S. Lenglen
1926	J. Borotra	Mrs. L A Godfree
1927	H. Cochet	Miss H. Wills
1928	R. Lacoste	,, ,,
1929	H. Cochet	,, ,,
1930	W. T. Tilden	Mrs F. S. Moody
1931	S B. Wood	Frankein C Aussem
1932	H. E Vines	Mrs F. S. Moody
1933	J. H. Crawford	,,
1934	F. J. Perry	Miss D. E. Rand
1935	F. J. Perry	Mrs. F. S. Moody
1936	F. J. Perry	Miss H. H. Jacobs
1937	J. D. Budge	,, D. E. Rand
1938	J. D. Budge	Mrs. F. S- Moody
1939	R. L. Riggs	Miss A. Marble
1946	Y. Petra	Miss P. Betz
1947	J. Kramer	Miss M Osborne
1948	R Falkenburg	,, L Brough
1949	F. R. Schoeder	,
1950	B. Patty	,
1951	R Savitt	, D Hart
1952	F. A. Sepman	, M. Connolly
1953	V. Seias	,
1954	J. Drobny	,
1955	A Trabert	, L. Brough
1956	L A. Hoad	, S Fry
1957	L. A. Hoad	, A Gibson
1958	A. J. Cooper	. ,,
1959	A. Olmedo	, M. E. Bueno
1960	N. A. Fraser	, ,,
1961	Rod Laver	, A. Mortimer
1962	Rod Laver	, J. R. Susman
1963	C. R. Mc Kinley	, Margaret Smith
1964	R. Emerson	, M. E. Bueno
1965	R. Emerson	.. Margaret Smith
1966	Manuel Santana	Mrs. Billie Jean King
1967	John Newcombe	,, ,,
1968	Rod Laver	,, ,,
1969	Rod Laver	Ann Jones
1970	John Newcombe	Mrs. Margaret Court
1971	John Newcombe	Miss. Evonne Goolagong
1972	Stan Smith	Mrs. Billie Jean King
1973	Jan Kodes	,, ,,

KERALA TAKES MORE STRIDES IN ITS SILENT MARCH TO SOCIALISM.

Security of Service ensured to
19 lakhs of agricultural workers

Ownership of land extended to lakhs of
tenants and hutment dwellers.

Nationalisation of Private Forests without compensation

Civil supplies Corporation for controlling price rice
and streamlining public distribution system.

Facilities in all Panchayats for medical treatment

Thousands of landless poor will own
a plot of land with an elegant home.

Public Relations Department, Government of Kerala

THE MALABAR
CO-OPERATIVE CENTRAL BANK LTD.
CALICUT-2

Our Progress, Prosperity & Prominence
are attributed to

- **Meritorious Service Tradition**
- **Courteous Dealings with Customers**
- **Cogent Security of Deposits**

Please avail of the extensive and efficient
Banking service at our following Branches

CALICUT, KALPETTA, BADAGARA, QUILANDY,
KUNNAMANGALAM, CALICUT
M & E BRANCH AND BALUSSERI

Federation Cup

Naples (Italy), May 22, 1974.

Australia won the women's team tennis competition for Federation Cup beating the Americans by 2. matchs to 1, E. Goolagong (Aust.) bt Heldmane (USA) 6-1, 7 5.

Jean Evert (USA) bt Dianne Fromholtz (Aust.) 2-6, 7-5, 6-4.

Evonne Goolagong and Janet Young (Aust) bt Julie Heldman and Shamon Walsli (USA) 7--5, 8 6.

Australia had previously beaten Britain by 3 0 and USA had won a hard-fought battle against West Germany by 2-1.

World Championship Tennis

(W. C. T.) Tournament

Dallas USA, April 1974

John Newcombe beat Bjorn Borg 4-6, 6-3, 6-3, 6-2. Stan Smith took the 3rd place.

French Open Championship

Paris, June 17, 1974

Men's Singles. Bjorn Borg (Sweden) won the Singles title beating Manual Orantes (Spain) 2-6, 6 7, 6 0, 6 1, 6-1. Borg, just turning 18, is the youngest player to claim the French championship.

Vijay Amrutraj (India) was eliminated from the French championship earlier (June 8) by Jan Kodes, who beat Vijay 6 2, 6-2, 6 2.

Women's Singles. Chris Evert (USA) beat Olgo Morozova (Russia) 6-1, 6 2.

Western India Championship

Bombay, March 1974

Men's Singles. Topseeded Ramnath Krishnan, beat second-seeded Premjit Lall 4 6, 6-1, 6 2.

Men's Doubles. Ramnath Krishnan and S. P. Misra beat Premjit Lall and J. Rajappa 7 6, 7 5.

Women's Singles. Nirupama Mankad beat national champion Susan Das 6 1, 6 3.

US Open Championship

Forest Hill, (US) (Estd. 1881) Sep. 10, 1974

Men's Singles. Jimmy Cannors (US) beat Ken Rosewall (Aust.) 6 1, 6 1, 6 1

Women's Singles. Billy Jean King (US) beat Evonne Goolagong (Aust. 3 6, 6 3, 7-5.

Men's Doubles. Stan Smith and R. Lutz (US) beat P. Cornego and J. Fillol (Chile) 6 3, 6-3.

Women's Doubles. Billy Jean King and Rosemary Cassals (US) beat Francis Durr (France) and Betty Stove (Netherlands) 7-6, 6 7, 6 4

Mixed Doubles. Pam Teeguarden (US) and G. Masters (Aust.) beat Chirs Evert and J. Cannors (US) 6 1, 7 6

BADMINTON (SHUTTLE)

Badminton Thomas Cup

Jakarta, May, 1973

Indonesia retained the Cup beating Denmark by 7 matches to 1. The surprise of the match was the defeat of Indonesia's No. 1 player and 6 times All England champion, Rudy Hortano by Svend Pri of Denmark 12-15, 15-5, 15 17.

All England Badminton (Shuttle) Championship

Men's Singles. Rudy Hortano (Indonesia) beat Punch Gunalan (Malaysia) 8 15, 15 9, 15 10. Hortano is winning the title for the 7th year in a row. This is an all time record. The next best record (5 times in a row) is that of J. F. Davlin (1925 29) father of the famed Davlin Sisters.

BALL BADMINTON

18th National Ball Badminton

Hyderabad, March 1973

Sir Alladi Cup

Men: T. Nadu beat Indian Railways. 29 17, 29-22 and retains Sir Alladi Cup. T. Nadu wins for the third time in succession.

Women. Mrs. Kurshid Ahmed Pasha Shield. Mysore beat Andhra. 29 20, 29-3. Mysore wins for the 7th time in succession.

Boys Kerala Cup Andhra beat Mysore, 29-19, 29-7. Andhra wins for the 6th time in a row.

The stars of India in badminton for the year 1972-73 were announced by the Ball Badminton Association (BBA) of India.

WE
TWO

*For people
who make
every
moment
count*

★

Distributor For Kerala

JOSEPH MICHAEL & BROS. (P) LTD.

Building No. XXXIII/545
T. D. Road, COCHIN-11.

Telephone 34776

Telegram
'MANARKADAN'

Badminton Stars

Men: Centre: Padmakumar (TN) Backs: Rajaram (TN), Subramanyam (Hyderabad). Fronts: Iqbal (IR), Rasheed (TN).

Women: Centre: M. A. Shakuntala (Mysore). Backs: Jayamma (Mysore), Bharathi Rashiklal Shah (Maharashtra). Fronts: Sudha Setlor (Mysore), M. V. Rekha (Mysore).

Boys: Centre: Subramanyam (Andhra) Backs: Ganeshan (TN), Paulson (Kerala). Fronts: Mallikarjun Singh (Orissa), Ayoob (Hyderabad).

Inter-Varsity Championship

Hyderabad, Jan. 1973

Madras won beating Bangalore, 29 27, 19 23.

National Ball Badminton

New Delhi, April, 1974

Fifteen teams participated in the championship which is conducted on a league-cum knock-out basis.

They are: Andhra, Bihar, Delhi, Hyderabad, Kerala, T Nadu, Bombay, Maharashtra, Madhya Pradesh, Karnataka, Orissa, Pondicherry, Railways West Bengal and Uttar Pradesh.

Men's Title. Railways regained the title outclassing Karnataka, 29 20, 29 14 in the finals

In the men's final the following players figured.

Railways. A Karim, L. A. Iqbal, M. A. Sattar, Nityanand and P. Venkateshwar Rao.

Karnataka. H. D. Sudhakar Rao, K. V. Venkat Raju, N. L. Narayan, B. Radhakrishnamurthy and A. Joseph Victor.

Women's Title. Karnataka claimed the women's title for the 18th year in succession They were unbeaten in the league.

Boys Title. Andhra Pradesh retained the Boy's title winning all the league matches.

Final Standing

			Matches		
			Played	*Won*	*Loss*
Women					
	1	Karnataka	6	6	0
	2	AP	6	5	1
	3	Kerala	6	4	2
Boys					
	1	AP	10	10	0
	2	Orissa	10	10	1
	3	Kerala	10	8	2

Uber Cup

Jakarta, May June 1975.

India declared Asian Zone winner, as there was no other entry from their zone. Inter zonal tournament will be held at Jakarta in May June 1975.

BASKET BALL

International

Basket Ball was introduced into Olympics in 1936. From 1936 onwards US have been consistently winning the Olympic title. In 1972 Russia dethroned US by a narrow margin, 51 points to 50.

1. Russia 2. US 3. Cuba.

National Basket Ball

1972 Venue: Cochin

Men: Services beat Railways 72—60.

Women: W. Bengal beat Maharashtra 40—34.

Inter-Varsity Basket Ball (Women)

1972 Venue: Bombay.

Bombay beat Jivaji 85—40.

At the Universiad in Moscow in 1973, US avenged its defeat at Munich, beating Soviet Russia by the handsome margin of 75-67 in Men's basket ball and taking the gold medal. Soviet Russia in its turn, humbled US in Women's basket ball by a big margin 82-44 and took the Gold.

National Basket Ball—Poona, Jan. 1973: Titles

Men: Services retained championship beating Railways, 85-83.

Women: Maharashtra won the title beating holders, West Bengal, 67-42.

Boys: T. Nadu beat holders, Rajasthan 74-57.

Placings

Men. 1. Services 2. Railways 3. Rajasthan 4. Mysore.

Women 1. Maharashtra, 2. West Bengal 3. Mysore 4. Delhi.

Boys. 1. Tamil Nadu, 2. Rajasthan, 3. Maharashtra 4. Chandigarh.

Codes Used
BENTLEY'S SECOND PHRASE
ACME AND PRIVATE

Telephone: Office: 3324, 3511
Res: 2241, 3792
Telegram: POYILAKADA QUILON
Telex: "Nulfood" 088 203

POYILAKADA ENTERPRISES

TIN FABRICATORS, EXPORTERS OF SEA FOOD PRODUCTS & COMMISSION AGENTS

583 (Eastern Block), Residency Road,
Asramom, QUILON - 2
Kerala

(Division of Messrs: K. PARAMESWARAN PILLAI)

HINDALCO

Provides vital nourishment to over 5,000 Indian factories

Hindalco provides Aluminium, a vital raw material, to over 5,000 factories in India. Factories manufacturing Electrical Cables, Conductors and Appliances; Household Utensils and other requisites; Motor Vehicles; Packaging and Containers; Building and Construction material; Furniture and Architectural Sections; Defence Equipment; Dairy and Farming requisites, rain - and rust - proof grain silos, Paints, Machine parts...The Manufacturers of these and a hundred other products depend on metal from Hindalco.

Hindalco has taken giant strides to make our march towards self-reliance a reality. It has achieved remarkable and consistent increase in production to meet the growing demands of various industries.

And all this despite the fact that Hindalco has to pay very much more for power than any other Aluminium Producing Company in India.

HINDALCO

HINDUSTAN ALUMINIUM CORPORATION LTD.

P. O. Renukoot,
Dist. Mirzapur, U. P.

South Zone and Sri Lanka Basket Ball Championship—Aug. 1973

Team championship	*Wins*	*Loss*	*Points*
T. Nadu	4		
2. Kerala	3		
Mysore	2		
4. Sri Lanka	1		
5. AP	0		

Inter-Zonal Varsity Basket Ball
Men's Championship

Hirsar (Haryana), Dec. 1973

Rajasthan University, the North Zone Champions won the All India Inter-Zonal University Championship beating West Zone Champion Bombay, by 74 to 43 points. Bombay University took the second place. South Zone Champions, Madras University beat East Zone Champions, Burdwan University by 75 to 32 points and claimed the third place.

Women's Championship

Ujjain, Dec. 1973

Holders, Bombay University retained the Women's Championship beating Punjabi University (Chandigarh) 60 42.

National Basket Ball Todd Memorial Trophy

Madras, January, 1974

Men. The Services won the title beating Railways 94-59.

The Services were in a way, monopoly wonders of the title. Since 1957, except for 1968, when they were dislodged by Railways at Kottayam. They have re-established their supremacy in 1974.

Prince Basalatjali Trophy

Women. Delhi won the title beating Karnataka 49-41.

Boys. Maharashtra won the title beating Delhi by a big margin 128 76.

Nehru Gold Cup

Bilwara, June, 1974

Fifth Meet

Rajasthan won the trophy beating Army Signals, by 101 70 points

World Basket Ball

San Juan, July 15, 1974

Soviet Russia beat US 105-94 to win the seventh World Amateur Championship.

Placings on the basis of scoring average, 1. Soviet Russia. 2. Yugoslavia 3. US.

VOLLEY BALL

Olympics. Volley Ball was introduced into Olympics first at Tokyo in 1964. Russia won the Volley Ball title both at Tokyo and Mexico. In 1972 in Munich Japan annexed the Volley Ball title for men, beating E. Germany 11—15, 15—2, 15—10, 15—10. Placings: 1. Japan 2 E. Germany 3. Russia.

Women. In 1972 Olympics, defending champions Russa retained the title, beating Japan by 3 matches to 2.
Placings: 1. Russia 2. Japan 3. N. Korea

National Volley Ball

Bangalore, Jan. 1974

Men. Karnataka, the least fancied team won the title beating UP 15-11, 11-15, 15-2, 15-10.

For UP this was an anti-climax. They defeated Kerala all set to win the championship in 5 games to become the zone champions. They sent holders, Punjab, crashing with a straight win. In the semi finals, they scored another 5-game match against Kerala, only to flop miserably in the finals against Karnataka.

Women. West Bengal won beating holders Kerala 12-15, 12 15, 15 10, 15 11.

All-India Inter-University Volley Ball Tournament

Dharwar, Nov. 14,1973

Kerala (South Zone champions) won the championship beating North Zone champion Punjab 14-16, 15 3, 16-14, 15-5. Kerala won the trophy first ten years ago. Punjab has held the title 11 times so far. Jwaji, the West Zone champion beat East Zone winner, Burdwan 15-6, 15-11, 11-15, 15-4 gain the 3rd place.

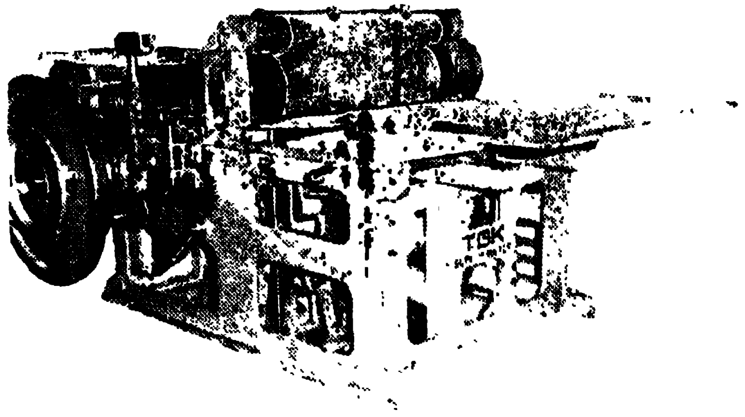
Inter University Women's Volley Ball South Zone Championship

Vidyanagar, Nov. 20, 1973

Kerala, who beat Madras holders first, blanked Saurashtra and Nagpur to emerge champions. Madras took the second spot beating Nagpur and Saurashtra. Saurashtra finished third.

KERALA GEARS
QUILON

Pioneer Manufacturers of
TGK Printmaster RA II Cylinder
Printing Machines in Kerala
Now Manufacturing



TGK SUPERPRINTER
RA I SIZE MACHINES ALSO

AGENTS

M/s. SHETH BROTHERS
DELHI / CALCUTTA

TABLE TENNIS

32nd World Championship

Sarajevo, Yugoslavia, April 1973

Swaythling Cup

(Men's Team Titles)

Sweden broke Asia's 20-year hold on the Swaythling Cup, in 1973 beating Japan by 5 matches to 3.

Scores:

1. Takashima (Japan) beat Persson (Sweden) 16-21, 21-13, 21-12.
2 Johansson (S) beat Mitsui (J)21-13 21 13.
3. Bengtsson(S)beat Tasaka (J)16 21, 21-11, 21-13.
4. Kono (J) beat Persson (S) 21 12, 21 12.
5. Bengtsson (S) beat Takashima J) 16-21, 21-14, 21 13.
6. Tasaka (J) beat Johansson (S) 21 6 21-6.
7. Bengtsson (S) beat Tasaka (J) 25-23, 22-20.

Ranking:

1. Sweden, 2. China (last year's holders); 3. Japan, 4. Soviet Union, 14th India and 52nd Kenya (Last).

Corbillon Cup

(Women's Team Title)

South Korea won the Corbillon Cup beating holders Japan, 3 1. Ailesa Lee, South Korea's star player, won all her three matches.

Scores:

1. Lee (S K) beat Yokota (J) 21 12, 21-14.
2. Lee (S K) beat Chezki (J) 21-10, 21-23, 21 14.
3. Chezki (J) beat Chung (S K) 21 19, 22-20
4. Lee and Park (S K) beat Kokoba and Chezki 21-10 21 23, 21 14.

Ranking: 1. South Korea 2. China 3. Japan 4. Hungary 17. India and 40. Turkey (last).

Table Tennis Individual Titles

Men's Singles. Hsi Enting (27)China beat Kjell Johanssen 21-8, 12-21, 13-21, 21-19, 21-18.

Women's Singles. Hu Yu lan (21) China, beat Alice Grofova (21) Czechoslovakia 21-17, 21-11, 21 14.

Men's Doubles. Stellan Bengsson and Kjell Johansson (Sweden) beat Tibor Klampar and Issvan Joonyer (Hungary 21-19, 15-21, 21-19, 18-21, 21-15.

Women's Doubles. Maria Alexandru (Romania) and Miho Hamada (Japan) beat Chou Pao Chin and Lin Mei Chun (both China) 21 11, 21 18, 21-14.

Mixed Doubles. Liang Ko Liang and Li h (China) beat Anatoly Strokatto and Astra Gedraite (Russia) 21 13, 21 18, 17-21, 21-19.

2nd Commonwealth Championship

Cardiff Wales, April 1973

Placings

Mens Teams. (Total Teams 16). 1 England 2. India 3. Australia 4. Malaysia 5. Hong Kong 6. Singapore

Women's Teams. (Total 14). 1. England 2 Canada 3. India, 4. Australia 5. New Zealand 6. Singapore.

Individual Titles

Men's Singles. Trevor Taylor (Eng) beat Denis Neale (Eng). 17-21, 21 17, 21 11, 21 13. Taylor won the championship at the first Commonwealth meet at Singapore in 1970.

Women's Singles. Mrs. Jill Hammersley (Eng) beat Karenza Mathews (Eng) 21 11, 21 19, 21 14.

Men's Doubles Taylor and Neale(Eng) beat Pinkewich and Tuckett (Australia) 15-21, 22 20, 21-15, 21-15.

Women's Doubles Mrs. I Hammersley and L. Howard (Eng) beat Mrs. Mathews and L. Howard (Eng) 21 18, 16-21, 21 16, 21 18.

Mixed Doubles D. Neale and Mrs. K. Mathews (Eng) beat A Hydes and L. Howard (Eng), 21 14, 21 17, 19-21, 21 16.

Asian Table Tennis Union (ATTU) Championship

2nd meet

Yokohama, Japan, April, 1974

Men's Singles. Defending champion Nobuhiko Hasegawa (Japan) defeated reigning world champion Hsien-Ting in straight sets, 3-0 to win the title. Score. 21-15, 21-14, 21-13.

Women's Singles. Tomie Edano (Japan) won beating fellow country-woman Yukie Onzeki. 21-15, 21-14, 21-18.

Men's Doubles. N. Kohno and N. Hasegawa (Japan) beat Taio Won Yuran and Li Chen Shih (China) 21-16, 13-21, 21 18, 20-22, 21-17.

Mixed Doubles. Mitsu Kohno and Tomie Edano (Japan) beat Li Chen Shih and Chaug Li (China) 21-14, 21-16, 21 16.

Bhagyalakshmi

ANDHRA PRADESH STATE LOTTERY

GET RICH QUICK

One Rupee works wonders

1 Many Attractive Prizes.
2 Fabulous chance to win from the Lottery everyone's talking about.
3 Highest chance of winning! maximum number of Prizes.
4 Most convenient and quickest payment of Prize money.

PRICE PER TICKET : Re. 1

QUALITY....
ASSURED SUPPLY....

THE WATCHWORDS OF KARNATAK STEEL

Our quality control is ruthless. It never lets the slightest fault bypass it. That's the reason our products bear the stamp of impeccable quality.

We make sure delivery schedules are met on time. Write to us today. We shall be glad to meet your requirments in steel wires, be it ACSR Core wires' Cable Armour wires, GI wires upto 20G, Cycle Spoke wires, P. C. Wires, "As drawn" and "Stress relieved", Umbrella Rib wires (Round and Square), Rolling Shutter wires. Upholstery Spring wires, Spring Steel wires grade I & II, Chain Rivet wires or any other.

KARNATAK STEEL....
FOR TOTAL EXCELLENCE.

KARNATAK STEEL & WIRE PRODUCTS LTD.

Principal Office:- Harinivas' 2nd Floor 36, Cunningham Road
BANGALORE-560 052.
Regd. Office & Factory; 11th Mile, Mysore Road,
Kengeri - 562118, Bangalore
Telephone : 75141 & 75142
Grams : ALLWIRES - KENGERI.

Boys. Toru Yamaguichi (Japan) beat Arun Kumar (India) 21-11, 21-18, 20-22, 11-22, 21-19.

Girls. Yang Yen Chun (China) beat Kayoko Kawahigashi (Japan) 21-17, 21-14, 24-22.

Indian Team

The team is: (Men) N. R. Bajaj, M Dua, K. Jayant, and C. Jagannath. (Women) Rupa Banerjee, K. R. Saraswati and Lata George. (Junior Boys) B K. Arun Kumar and C. R. Ramesh Babu. (Junior Girls)—Veenu Bhushan and Nandini Barooah.

European Table Tennis Championship (9th Meet)

Novi Sadm (Yugoslavia), April, 1974

Men. Holders Sweden, defeated Hungary 5-3 to win the gold medal.

Hungary won the silver medal and Yugoslavia the bronze.

Women. Soviet Union beat Hungary 3-1 to win the gold medal Hungary took the silver medal and Czechoslovakia the bronze.

National Table Tennis

Madras, Jan. 1974

Maharashtra emerged the best in both the men's and women's divisions in the National Table Tennis Championship. Maharashtra 'A' team annexed the Men's title and Maharashtra 'B' the women's title.

Barna Ballack Cup

Men. Maharashtra 'A' beat Karnataka 5-4 and Delhi 5-2 and humbled defending champions Andhra Pradesh 5-2, to win the cup.

Placings. 1. Maharashtra 2. Delhi 3. Karnataka.

Jayalakshmi Cup

Women. Maharashtra 'B' annexed the title beating Gujarat 3-1. Maharashtra 'B' and Gujarat emerged from the league matches with two wins and one loss each Maharashtra claimed the trophy, on beating Gujarat. Bengal, the defending champions were eliminated by Maharashtra 'A' earlier.

Placings. 1. Maharashtra B 2. Gujarat. 3 Maharashtra A.

Ramanujan Trophy

Boys. Karnataka claimed the Boy's title beating Maharashtra, Andhra Pradesh and Tamil Nadu each by 3 0.

Placings. 1. Karnataka 2. Tamil Nadu 3. Maharashtra 'A'.

Padmawathi Trophy

Girls. Assam lifted the Padmawathi Trophy overcoming UP.

Placings. 1. Assam UP 3. Maharashtra A.

Individual Titles

Pitapuran Cup

Men. Manjit Dua, the 19 year old Sikh player from Delhi, annexed the cup beating G. Jaganath (Railways) 21-13, 21-11, 21 18.

Travancore Cup

Women. Mrs. Rupa Banerjee (nee Mukherjee) claimed the Women's title beating the Tamil Nadu ace, P. Valsala 22-20, 21 13, 21 9

Men's Doubles D R Saxema and N. V. Ashok (AP) beating holders B Saikumari K. Jayant. 21 19, 15 21, 21 16, 21 16.

Susan Barua Cup

Mixed Doubles. Mrs Banerjee (Bengal) and Mir Kaarim Ali (AP) win the title beating Vilas Narasapur and Kalwathi Seetharam (both Maharashtra) 21 7, 21 11, 13 21. Mrs. Banerjee has thus earned a double in this nationals.

Indira Trophy

Boys. Arun Kumar (Karnataka) beat V. Marballi (Maharashtra) 17-21, 21-8, 21 9, 21 11.

Rajakumari Amrita Kaur Trophy

Girls. Veenu Bhushan (UP) beat Kiran Wardekar (Maharashtra) 18 21, 21 8, 21 14, 21 15.

European Table Tennis Championship

Novi Sadm (Yugoslavia), April, 1974

In the ninth European table tennis championship holders Sweden defeated Hungary 5-3 to win the gold medal.

Western India Championship

Bombay, Aug 1974

Men's Singles. G. Jagannath beat Sudhir Phadke (Delhi) 24 26, 22-20, 21-17, 19-21, 21-14.

Women's Singles. Shailaja Salokhe beat Nandini Kulkarni (both Maharashtra) 21-12, 21 16, 21-15.

Men's Doubles. Mir. Kasim Ali and N V. Ashok beat Manjit Dud and Nirai Bapy 16-21, 21 13, 21-17.

Mixed Doubles. Subas Kulkarni and Nayarch Morvla beat R. Chachad and Shailaja Salokhe 21 12, 18-21, 21-13.

Boys Singles. Ramesh Babu beat Arun Kumar (both Maharashtra) 21 16, 9 21, 21 15, 21 16

TEST YOUR TIQ*

Time allowed is 5 minutes. Check your answer with correct ones given below:

NAME THE FOLLOWING:

1. The state whose capital has the following special features (a) golf club (b) paddy fields (c) is on the sea-level but the nearest 1000 metres-high hill resort is **only 2 hours drive away ?**
2. The State that has the **only** wild life sanctuary in India where the visitors watch the animals while **cruising on a lake ?**
3. An area (now one state) which has attracted sea-captains, traders, visitors, pilgrims and tourists from the B. C-era to the present, **in an unbroken chain.**
4. In which state do you find cashew, jackfruit, tapioca, cloves, Jersey cows and breadfruit, all exotic varieties, but now thriving in their **new locale ?**
5. A state where you get accommodation in former PALACES for as low as Rs. 16/- per day **even today.**
6. What is T I Q* ?

For Tourist Information Contact:

TOURISM OFFICE
Park View,
Trivandrum-1

OR

KERALA TOURISM DEVELOPMENT CORPORATION OFFICE
Mascot Hotel buildings,
Trivandrum.

Answers to questions 1 to 5: KERALA.
Answer to question 6 Tourist Information Quiz.
THANK YOU.

BILLIARDS

World Amateur Billiards

Bombay, Dec. 1973

M. J. M. Lafir (Sri Lanka), after being runner up in World Amateur Billiards twice, finally achieved the Summit, winning the championship in Bombay.

The defending champion Norman Dagley could not compete. It was the Indian champion, Satish Mohan, who posed a threat to Lafir. But Lafir crushed Mohan with massive total of 2213 points to 1079.

National Championship

Cochin, Feb. 1974

Satish Mohan (Gujarat) won the championship beating Arvind Savur (Karnataka) 5506 2472.

This is the 5th time that Satish wins the national title He had first won the title in 1968.

Bangalore, Dec. 1974

Michael Ferreira of Maharastra won the championship beating Satish Mohan, who was the champion for the last four successive years, 2557 1075.

SNOOKER

World Open Snooker Championship

London, Dec. 1973

John Spencer (England) beat John Pulman (also of England) in a hard fought final by the narrowest of margins 8 frames to 7.

Australia's former world professional snooker champion, Horace Lindrum, died in a private hospital on June 21, following a brief illness Lindrum (62) was the only player to complete 1,000 century breaks in public. Lindrum made 14 world tours and became world champion in 1951, a title he held for six years.

Recalling his exhibition matches in South India in 1952, Mr. T. A. Suri, Secretary of the Tamil Nadu Billiards Association, who had accompanied him during that tour said at Madras that Lindrum was the most colourful character who would be remembered by the followers of the game for ever. Although he was a professional there was an amateur approach in him. He appreciated the difficulties of the organisers and was most co-operative.

National Championship

Cochin, Feb. 1974

Shyam Shroff (Maharashtra) retained the national title beating T Monteiro (Railways) by 6 frames to 2.

Score: 42 78, 64 48, 85 35, 70 38, 63-40, 61 28, 44-52,68-23.

This the seventh time that Shyam wins the national title. He first won in 1964.

Bangalore, Dec. 1974

World amateur Billiards Champion M. J. M. Lafir of Sri Lanka won the championship defeating Arvind Savur of Karnataka by 5 frames to 2.

Score: 71-53, 115-30, 52 81, 32 76, 97 25, 67 65, 76 32.

CHESS

INTERNATIONAL

Chess, the king of indoor games, originated in India. It was believed, until recently, that chess was invented in India, around 570 AD. The latest researches by Soviet archeologists show that chess was prevalent in India, as early as the 2nd Cent. AD* It must have been invented much earlier. Chess passed from India to Persia and from there, it spread to Europe. The Indian chess known as *Chathuranga* (Chathur-four, anga limbs) represented the fourfold arms of ancient India—the horse, the chariot, the elephant and the foot soldier commanded by the King (Deva) and his Minister (Mantri).

In the West, the pieces changed their names. *Deva* of the Indian chess was appropriately renamed *King*; *Mantri* (Minister) was rather incongruously replaced by *Queen* and the *Elephant* by the *Bishop*. The *Horse* continued under the name of *Knight* and the *Chariot* as the *Rook*. The foot soldiers became *Pawns*. The moves were also altered The practically powerless Minister of the Indian chess became the all-powerful Queen, who moved in all directions—lengthwise, crosswise and diagonally. The moves of the Bishop were also changed from those of the Indian Elephant. All the other pieces have retained the old Indian moves.

Press Report-Moscow March 14, 1974.

.... KERALA must be the Eden of India, unrivalled and unsurpassed. We now travel assessing the passing sights with Kerala as the standard of comparison ....

Prof. Martin, U S A.

VISIT KERALA & STAY AT

Mascot Hotel	- Trivandrum
Garden House	- Malampuzha
Tourist Bungalow	- Guruvayoor
Arania Nivas Lake Palace Periyar House	Thekkady

(Units of Kerala
Tourisum Development Corporation Ltd.)

SHENOI TRADES & AGENCIES Phone 26103
DISTRIBUTORS FOR CROMPTON FANS,
KHIRA PRESSURE COOKERS AND KHIRA STEEL FURNITURE
KAPPALANDIMUK, COCHIN-2.

COOK SAFE, COOK FAST

with KHIRA pressure cooker

- ISI Certificate
- Thick gauge aluminium
- Patent safety locking device
- 5 sizes
- 5-year guarantee
- Superior after-sales service

Khira

KHIRA STEEL WORKS PVT. LTD.

S. V. ROAD, SANTACRUZ WEST,
BOMBAY 400 054

Grant. 4473

The Italians popularised the game in Europe in the fifteenth and sixteenth centuries. Then the Russians took over. They found chess an ideal pastime, to while away their long winter days. Modern chess in fact was nursed and nourished by the Russians. Their long experience in the game, enabled them to produce a crop of chess champions.

World Champion

In Aug. 1972, Bobby Fischer defeated Boris Spassky (12½-8½ points) at Reykjavik, the capital of Iceland. Bobby Fischer is the reigning world chess champion.

In the challenge round to decide who should contest the next world championship against Bobby Fischer, Soviet Grand Master, M. A. Kyrpov beat compatriot V Korchnoi by a 3 2 lead on Nov. 21, 1974.

World Chess Champions

	Name	Country
1851–58	Adolph Anderssen	Germany
1858-62	Paul C Morphy	US
1862-66	Adolph Anderssen	Germany
1866 94	Wilhelm Steinitz	Austria
1894 1921	Emanuel Lasker	Germany
1921-27	Jose Capablanca	Cuba
1927 35	Alexander Alekhine	France
1935 37	Max Euwe	Netherlands
1937 46	Alexander Alekhine	France
1948-57	Mikhail Botvinnik	USSR
1957 58	Vassily Smyslov	USSR
1958 60	Mikhail Botvinnik	USSR
1960 61	Mskhail Tal	USSR
1961–63	Mikhail Botvinnik	USSR
1963 69	Tigran Petrosian	USSR
1969 72	Boris Spassky	USSR
1972	Bobby Fischer	US

National Chess

The National Chess Championship was officially instituted in 1955 at Eluru, Andhra Pradesh. The winners were bracketed- R. B Sapre of Maharashtra and D. Venkaiya of Andhra Pradesh. The tournament was conducted biennially.

In 1957, at Poona, Ramdas (UP) won the championship with Manuel Aaron Tamil Nadu) a close second. In 1959 at Delhi, Aaron won the title He retained it at Hyderabad in 1961. In 1963, Farook Ali (then of Bombay, now of AP) won the title at Bombay. Rusi Madon of Bombay became champion in 1965 at Madras.

In 1967 the system was changed. Instead of the one Swiss system tournament, followed until 1965, a two-tier system was introduced from 1967 onwards-one, the qualifying 'B' tournament played on the Swiss system and the final 'A' on a league basis, among the players who qualified in 'B' and the first six of the previous year's tournament, who were seeded. Aaron regained the title, under the new system in 1969 at Bangalore and retained it at Bikaner in 1971.

From 1971, National Championship was made an annual affair. In the 1972 championship at Simla, Aaron was involved in a triple tie with Mahammad Hassan (AP) and Arun Vaidya (Bombay). He kept up the title in a tie-resolving contest at New Delhi in April, 1972.

In the 11th National Championship at Ahmedabad in 1973, Aaron retained his title, defeating Mohan Babur of Maharashtra in the final round.

CHESS OLYMPIAD

Nice (France), June 29, 1974

The Chess Olympics are held every two years In 1974 at Nice, 74 teams competed as against 63 teams which came to the last Olympics at Skopje.

Soviet Union won the Chess Olympics for the 12th time in succession. They won the championship first in 1952. The Russians did not lose a single game and finished 8½ points ahead of their nearest rivals Yugoslavia. Soviet Union won the gold, Yugoslavia the silver and US the bronze. US claimed the bronze by beating Bulgaria in a tie breaker.

Placings

1 Soviet Russia 40 (out of 60)
2 Yugoslavia 37½
3 US and Bulgaria tied 36½
4 Netherlands 35½
5 Hungary 35

Others in order

West Germany (32), Rumania and Czechoslovakia (29½), Philippines and Spain (25½), Argentina (23½), Finland (22) and Wales (15)

India did not participate in the Olympics as a protest against the participation of Rhodesia and South Africa. Rhodesia and South Africa were finally suspended towards the close of the Olympics.

WORLD JUNIOR CHESS
Championship

Manila, Aug 23, 1974

Final Positions

1 A. J. Miles (England) 7½ points
2 R. Dicks (Netherlands, 5½ points

Kerala State Warehousing Corporation

hails the march of the Nation.

A new India is marching ahead to self-reliance and economic self-sufficiency.

In its own modest way

Kerala State Warehousing Corporation helps to achieve these objectives by providing scientific storage facilities through its 43 well equipped Warehouses scattered throughout the State.

Our Warehouses and the Bank Extension Counters attached to it help STORAGE AND EASY CREDIT go hand in hand benefitting innumerable agriculturist depositors.

Kerala State Warehousing Corporation is thus engaged in making contribution to the prosperity and progress of the Nation by its active participation.

KERALA STATE WAREHOUSING CORPORATION

P. B. No. 1727, Cochin – 682016.

Gram: 'KERWACOR'

Phone: Office: 31537
Res: 39417

OUR WAREHOUSES

Kasargod
Kanhangad
Nileshwar
Payyannur
Cannanore
Talliparamba
Tellicherry
Manantoddy
S. Battery
Badagara
Quilandy
Muthalamada
Kozhinjampara
Palghat
Alathur
Wadakkancherry
Kunnamkulam
Alwaye
Perumbavoor
Moovattupuzha
Kothamangalam
Thodupuzha
Kattappana
Vandanmettu
Ponkunnam
Kottayam
Changanacherry
Thiruvalla
Palai
Chengannur
Edathua
Thakazhy
Alleppey
Sherthalai
Kayamkulam
Punalur
Kottarakkara
Quilon
Parakode
Nedumangad
Trivandrum
Tripunithura
Tiroor
Feroke
Alangad
Adimali

Others in order– Marjanovic (Yugoslavia), Schnieder (Sweden), Mack (Germany), and Kochied (Soviet Union)

Ravi Shanker (India) won the 6th position in group 'B' with 4.5 points

Chess Grand Prix

(Andhra Pradesh)

Hyderabad, April 1973

National Champion, Manuel Aaron, won the Andhra Pradesh Grand Prix Chess title, beating Syed Nazir Ali (UP) by 4½ points to 1½ points in the final.

In the losing semi finalist's match for the third and fourth places Sapre and Mohammed Hassan were bracketed. They agreed to share the 3rd place.

Junior Chess

New Delhi January, 1974

R. Ravishankar (Tamil Nadu) became the Junior national champion when he beat Ashok Alexander (Delhi) on January 3, 1974.

Ranking. 1 R. Ravishanker (Tamil Nadu) 7 points.
2 Ashok Awate (Maha.) 5½ points
3 S. G. Sant (Maha.) 4½ points
4 Ashok Alexander (Delhi) 4½ points

National Chess B

Bhubheneswar, June, 1974

National Chess Tournament B was inaugurated at Bhubheneswar, Orissa on June 5, 1974. About 120 players representing the States and Territories of India participated

14 players from this tournament are selected to participate in the A Group National Championship) The first six players in the last A group meet at Ahmedabad in 1973 are also entitled to enter the 1974 A tournament. These 2 players are to play against each other on a league basis for A Championship.

12th National 'B' Chess Tournament

Anand Kumar Ghosh (WB) won the 12th National B Chess Championship. With the score of 11½ points he defeated R. K Gupta of Delhi in the 15th and final round at the University of Agriculture and Technology

Mohan Babur who beat P. C. Gupta (Delhi) finished runner-up with 10½ points. D. V. Ranga Rao also with 10½ points is placed third since he was held to a draw by Kalika Prasad (UP)

Position of the first 18 out of 108 competitors. 1 Anand Kumar Ghosh 11½ points out of possible 15 pts. 2. Mohan Babur 10½ (87½). 3. D. V. Ranga Rao 10½ (84) Frank Gladwin 10. (84½). 5. K. Sai Prakash 10 (83½) 6 K. K. Shukla 10 (80) 7. R. K Gupta 10 (79½) 8. K. B L. Srivastava 10 (77½) 9. R. Ravisekhar 10 (77½) 10. S Hassan 9½ (88). 11. N. Ghalib 9½ (84½). 12 V. B. Adhikari 9½ (81). 13. S V. Natarajan 9½ (79½). 14. S. K. Madan 9½ (79½). 15. R. R. Bhatia 9½ (78½). 16. Kalika Prasad 9½ (77). 17. R. C. Chauhan 9½ (76½). 18. R. Sridharan 9½ (72½).

The first 14 have qualified to play for the National title at Orissa, along with six seeded: Manuel Aaron (TN), Nasirali (UP), R. B. Sapre (Maha.) Mohd Hassan (AP), Arun Vaidya (Maha'), and Abdul Jabbar (Maharashtra).

All India Open Chess Tournament Kidson Rolling Trophy

Calicut, Feb 1974

National champion Manuel Aaron (Tamil Nadu) beat Kerala No 3, Praveen Kumar in the final and last round of the tournament and won the title with 9½ points out of 10.

Scores 1. M. Aaron (9½) 2. Mohammad Hassan (8½) 3. Revi Sekhar (8) 4. Ferook Ali, T N. Parameswaran and N. Ghalib (7) 5. T. K. Joseph, Delli Babu, K. C. Sebastian, and A. K. John (6½).

Bilwara National Tournament

New Delhi, Sept. 20, 1974

Nasir Ali won the Bilwara National invitation chess tournament trophy and the first prize of Rs. 4,000.

Nasir Ali, who was consistent throughout the tournament played an attacking game to overcome Hyderabad's Farooq Ali.

The final points tally: Nasir Ali 7 points (S. B score 32 25); Arun Vaidya 7 (31.5); Manuel Aaron 6½; Arshad Ali 6; K. B. L. Srivastava, R. B Sapre and Abdul Jabbar 5 each; R K. Gupta 4½; Farooq Ali and Mohammad Hassan 3½ each; S. C. D. Devgan 2.

The Longest Match in Wimbledon

The longest Singles match in Wimbledon history was played in 1953 between Jaroslaw Drobny (Czech) and Bridge Patty (USA). The match lasted 4 hrs 20 min. Drobny won 8 6, 16-8, 3-6, 8 6, 12-10.

Did you know?
Bank of Baroda works
'round the clock
'round the world.

At any given time, you will find a branch of ours working somewhere in the world.
After all, we have the largest number of foreign branches among Indian Banks (29, to be precise, including our Uganda subsidiary), spread over different parts of the globe such as the U. K., East Africa (Kenya & Uganda), Mauritius, Fiji Islands, Guyana and United Arab Emirates. And of course, over 780 branches throughout India.
All this and more—expert assistance and prompt, courteous service at all our branches. No wonder, so many businessmen and others at home and abroad prefer to bank with us
If you have any problems on import, foreign exchange, etc., please leave them to us and relax

Thou shalt forever be prosperous with

BANK OF BARODA

A Government of India Undertaking

THE KERALA STATE FINANCIAL ENTERPRISES LIMITED

(A Government of Kerala Undertaking)
Regd. Office:
XX/137, Civil Lines Road, TRICHUR-4

The only Public Sector Undertaking in India
Conducting CHITTIES/KURIES Business

For details, please contact our Branches at:

TRIVANDRUM
ATTINGAL
QUILON
PUNALUR
KOTTAYAM
THODUPUZHA
ALLEPPEY
ERNAKULAM
TRICHUR
KUNNAMKULAM
PALGHAT
MALAPPURAM
CALICUT
CANNANORE

The Company also does
HIRE-PURCHASE FINANCING ON ATTRACTIVE TERMS FOR

Buses, Lorries, Cars, Jeeps, Motorcycles, Scooters, Refrigerators, Radios, Fans, Washing Machines, Domestic Pumpsets, Typewriters and Steel, Furniture

FOR DETAILS:
Please contact our above Branches and Hire-Purchase Division
PALACE ROAD, TRICHUR - 1

BRIDGE

World Bridge Championship
20th Meet

Bermuda Bowl Trophy

Venice, Italy, May, 1974

Defending Champions Italy, defeated North America 193-166 to claim the Bermuda Bowl for the 15th time in 18 years.

National Bridge

Agarwala Trophy
(Masterpair event)

New Delhi, April 1974

Y. N. Rao and J. S. R. Krishna Rao (Andhra Pradesh) won the Agarwala trophy R. C. Agarwala and A. J. Mehta Maharashtra) became runners up.

The final position of the pairs is as follows: Y. N Rao and J. S. R. Krishna Rao (AP)—149. V. P: R C. Agarwal and A. J Mehta (Mah.)—143. V. B. Gupta and Maj. Harish Chandra (Delhi)—124; Dr. N. S Tibrewala and S. Panjater (Mah.)—123; Dr C. S. Rao and C. K Rao (AP)—116, M M Chowdhury and K. C. Bhargava (MP)—115; M. Roy and M. Chatterjee (WB)—113; Dr. M. B. Kher and R Gokhale (Mah. —106; R. Ghosh and K. M Mukherjee (WB)—105; A D K. Singh and S. V. R. Murthy MP)—92; S K. Agarwala and S. P Singha (Bihar)—69; P. K Nambiar and M J Shah TN)—65.

Guru Dutt Trophy
Inter-State Bridge Championship

New Delhi, April, 1974

West Bengal won the Guru Dutt trophy with a record tally of 175 V.P.

Team. N Sen (Captain), Robi Roy, Shanti Sen, Ashok Roy, R. Dey and Gaurauga Das.

South Zone Championship

Tiruchi, Tamil Nadu, July 1974

Twenty six players from all the southern states-except Kerala-participated in the tournament.

G. S. Reddy Trophy

Winners: -Punnoose's Team. *Members.* D. Punnoose, N. K. Nachiappan, N. Ramaratnam, M. R. S Manickavelu, N. Nagappan and M. J. Shah.

Prince Baslat Jah Trophy

Winners: Punnoose's Team. Members (as above)

Progressive Event

Technocrats Team. *Members* Vasudevan, Prabhakar, Sri Krishnan and Madhava Prabhu.

Bahga Trophy
(Master pairs event)

Winners R. M Kumarappan and N. V. M. Gani.

BOXING

New York, Jan. 29, 1974

Mohammad Ali beat Joe Frazier in a full 12 round boxing bout, on a unanimous points decision. Ali (32) was beaten by Frazier on March 8, 1971.

Ali, a former world champion thus avenged his three year-old defeat at the hands of Joe Frazier

Ali will now fight heavy weight champion G. Foreman.

Ali had wrested the heavy weight crown from Soring Liston on 25 Feb. 1964 at Miami Beach. Foreman, who beat Frazier won the heavyweight title about a year ago at Jamaica.

Caracas (Venezuela) March 1974

Heavyweight champion George Foreman knocks out challenger Ken Norton in the second round of a scheduled 15-round fight at the new Poliedro Arera.Ken Norton has now a record of 30 victories and 3 defeats.

Kinshasa (Zaire), Oct. 30, 1974

Muhammad Ali knocked out George Foreman with a right to the head and won back the world heavyweight championship to cap one of the greatest accomplishments ever in the world of sport.

It came ten years after Ali had first won the title by knocking out Sonny Liston and seven years after he had the title stripped from him for refusing induction into the military.

Foreman seemed to be winning the eighth round when Ali backed him into a corner and landed a left and right to the head. Foreman took the count and Ali had won back his title. The defeat was the first ever for the 25-year old Foreman, and the crowd of 70,000 created a mob scene and went crazy. Thirty seven of Foreman's previous 40 victories had been by knockout.

PART V

GENERAL INFORMATIONS

NUMERALS
  Arabic numerals
  Roman numerals
ABBREVIATIONS
  Latinisms
  Initialisms and Acronyms
THE SUPERLATIVES
  National Phenomena
  Man made Structures
  Worst Disasters
HISTORY
  Major Events BC 3000—A.D 1970
  Important People
WEIGHTS AND MEASURES
  Imperial System
  Metric System
  International System
  Temperature
  Standard Time
SCIENCE
  Theories and Principles
  Inventions and Discoveries
  Elements
  Milestones of Medicine
  Dietetics
AWARDS
  Nobel Prize
  National Awards
UNIVERSITIES IN INDIA-STATEWISE
SOBRIQUETS
ANIMAL WORLD
WONDERS OF THE WORLD
LOOKING BACK—1974

NUMERALS

Arabic Numerals

The numerals, now is everyday use, are called Arabic numerals, because it was from the Arabs that these numerals spread to Europe. Actually, they are Indian in origin and should rightly be called Indian numerals. Among the authors, who were instrumental in transmitting Indian mathematical knowledge from Arab sources to Europe, the most famous is Leonard of Pisa (A D 1202). Other important authors were: John of Seville (1135), Adelard of Bath (1142), Robert of Chester (1142), Villedien (1240) and Sacrabosa (1242).

Roman Numerals

Roman Numerals are those used by the ancient Romans They are letters converted into nnmbers I=1, V=5, X=10 etc They do not follow the digital system of Arab numerals. The general rules of Roman numerals are the followihg: (1) Repeating a letter repeats its value: XX=10+0=20. (2) A letter placed after one of eater value adds there to- VI=5+1=6. (3) A letter placed before another of greater value substacts there from: IV=5-1=4 (4) A dash line over a numeral multiplies its value by thousand- $\overline{X}$=10×1000=10,000.

Arabic and Roman Numerals

Arabic numerals and their corresponding Roman numbers are given below.

1	I	11	XI	30	XXX	300	CCC
2	II	12	XII	40	XL	400	CD
3	III	13	XIII	50	L	500	D
4	IV	14	XIV	60	LX	600	DC
5	V	15	XV	70	LXX	700	DCC
6	VI	16	XVI	80	XXC	800	DCCC
7	VII	17	XVII	90	XC	900	CM
8	VIII	18	XVIII	100	C	1000	M
9	IX	19	XIX	200	CC	1500	MD
10	X	20	XX			2000	MM

Higher Arabic Numerals

Some high Arabic numerals cause a lot of confusion, when used as words. The classic instance is *billion* which in U. S. is equal to *thousand million* and in Britain to *million-million*.

Figure	*U S and France*	*UK and other European Countries*	*India*
1 and 5 Zeros.	One Hundred Thousand	One Hundred Thousand	One Lakh
1 ,, 6 ,,	One Million	One Million	Ten Lakhs
1 ,, 7 ,,	Ten Million	Ten Million	One Crore
	Hundred Million	Hundred Million	Ten Crores
	Billion	Milliard: Thousand Million	Hundred Crores
1 ,, 12 ,,	Trillion	Billion	One Lakh Crore
1 ,, 15 ,,	Quadrillion	Thousand Billion	
1 ,, 18 ,,	Quintillion	Trillion	

ABBREVIATIONS

Abbreviations are an accepted form of expression in all developed languages. They save time and space. Abbreviations in English may be classified into two broad groups: (1) Latinisms and (2) Initialisms and Acronyms.

Latinisms include all those abbreviations and handy phrases that have come into English from Latin and from modern continental languages, especially French. Initialisms and Acronyms cover all those abbreviations that have been formed out of the letters of different words that make up a name.

LATINISMS

(L=Latin, Fr=French, It=Italian Ger=German, Sp=Spanish)

Ab initio	(L)	From the beginning
AD (Anno-Domini)	(L)	In the year of our Lord (after Christ)
A.D C.(Aide de camp)	(Fr)	Assistant
ad hoc	(L)	For this, i. e, a specified purpose
ad infinitum	(L)	To infinity, endless
ad interim	(L)	In the meantime
ad nauseum	(L)	To the nauseating point
ad valorem	(L)	According to value
a fortiori	(L)	With stronger reason
agenda	(L)	Things to be done
agent provocateur	(Fr)	A collusive agent employed by the government to provoke discorder
aide	(Fr)	Helper, assistant
aide memoire	(Fr)	Notes to aid memory
a la carte	(Fr)	According to the menu, a meal of selected itemes from the menu
a la mode	(Fr)	In the manner of
alma mater	(L)	Gracious mother, applied to one's old school/college
alter ego	(L)	A second self, an intimate
a.m (ante meridiem)	(L)	Before noon
a priori	(L)	From cause to effect, deductive reasoning
a propos	(Fr)	Referring to that point
au fait	(Fr)	Expert in anything, well versed
au revoir	(Fr)	Good-bye until we meet again
autobahn	(Ger)	A double-road motor highway
bonafide, bonafides	(L)	In good faith, good faith
bete noir	(Fr)	A black beast, a bug bear, a special object of dislike
boutique	(Fr)	A shop, a tradesman's stock
bon voyage	(Fr)	Wish a good journey
c. circa	(L)	About or approximately, usually used to denote dates, which cannot be precisely determined
carte blanche	(Fr)	Blank cheque, full powers
caveat emptor	(L)	Let the buyer beware, that is, the buyer takes the risk
casus belli	(L)	Whatever justifies or involves war
cause celebre	(Fr)	A famous trial
ceteris paribus	(L)	Other things remaining the same
corpus delecti	(L)	The substance of the offence
coup d' etat	(Fr)	Change of government by force
coup de grace	(Fr)	Finising stroke
coup de main	(Fr)	Sudden overpowering attack
coup de maltre	(Fr)	Master stroke
cum grano salis	(L)	Literally,with a grain of salt— with some allowance for exaggeration.
de facto	(L)	In fact
de jure	(L)	In law
de novo	(L)	Anew, afresh
divide et impera	(L)	Divide and rule
Dei gratia (D·G)	(L)	By the grace of God
Dei volenti (D. V.)	(L)	God willing

e. g. (exempli gratia)	(L)	For example
el Dorado	(Sp)	An imaginary land of riches
de luxe	(Fr)	Sumptuous
detente	(Fr)	Relaxation of strained relations.
elite	(Fr)	Select, choice
en fete	(Fr)	In holiday spirit
en masse	(Fr)	In a body
en bloc	(Fr)	As one unit, wholesale
en passant	(Fr)	In passing
en route	(Fr)	On the way
entente cordiale	(Fr)	A cordial understanding
et. al. (et alibi)	(L)	And others
etc. (et ceteri)	(L)	And others
etc. (et cetera)	(L)	And so forth
et seq. (sequentia)	(L)	And what follows
ex cathedra	(L)	From the chair of office, authoritatively
ex gratia	(L)	As an act of grace
ex officio	(L)	By virtue of one's office
ex hypothesi	(L)	Arising from the hypothesis
ex parte	(L)	One sided, without the other party
ex post facto	(L)	Retrospectively
facsimile	(L)	A close imitation, a copy
f. f. (fecerunt)	(L)	Folios, (pl) following
fait accompli	(L)	Accomplished fact
faux Pas	(Fr)	False step
festina lente	(L)	Hasten gently
fiat lux	(L)	Let there be light
functus officio	(L)	Having no office or jurisdiction in the matter
grand prix	(Fr)	Great prize
honoris causa	(L)	As an honour
ibid. (ibidem)	(L)	In the same place
i. e. (ide est)	(L)	That is
idem	(L)	The same
in camera	(L)	Literally in a room, privately
in cog. (in cognito)	(L)	Unknown
in extenso	(L)	At full length
infra dig. (infra dignitatem)	(L)	Below one's status
infra	(L)	Below
in extremis	(L)	At the point of death
in pace	(L)	In peace
in re	(L)	In the matter of
in situ	(L)	In its original site or position
in toto	(L)	Totally, completely
ipso facto	(L)	By the fact of it
ipsi dixit	(L)	He himself said it, a dogmatic pronouncement
inter alia	(L)	Among other things
inter se	(L)	Among themselves
i. q. (idem quod)	(L)	The same as
laissez faire	(Fr)	Let go, leave alone, a governmental policy which gives complete freedom to individuals in business.
lingua franca	(L)	Common language
loc. cit. (loco citato)	(L)	At the place quoted
locus standi	(L)	Right to interfere
magnum opus	(L)	Great work
mala fide	(L)	In bad faith (the opposite of bonafide)
mal a propos	(Fr)	Ill timed
mandamus	(L)	Mandatory order issued by courts to any authority requiring them to do specific acts pertaining to their office
modus operandi	(Fr)	Mode of operation
modus vivendi	(Fr)	Way of agreeing
mutatis mutandis	(L)	With necessary or consequential changes
N. B. (nota bene)	(L)	Note well
nem. con. (nemine contradicente)	(L)	No one contradicting
nem. diss. (nemine dissentiente)	(L)	No one dissenting
non seq. (non sequitur)	(L)	It does not follow
op. cit. (opere citato)	(L)	In the work cited
noblesse oblige	(Fr)	Generous things are expected from men of high position
nom de guerre	(Fr)	An assumed name
nom de plume	(Fr)	Pen name
nee	(Fr)	Born (usually used to indicate the maiden name of a married woman)

obiter dictum/ dicta	(L)	A passing remark/ remarks
pace	(L)	By your leave, or with great respect for–generally used to denote disagreement with the views of reputed persons
pari passu	(L)	With equal pace, together
persona grata	(L)	A person acceptable to whom he is sent.
persona non grata	(L)	Person whose status is not recognised, especially diplomatically
post restente	(F)	Letters to be kept in the post office until called for
pro forma	(L)	As a matter of form especially in bills and accounts (a proforma bill)
pro tanto	(L)	For so much
peccavi	(L)	(See box item p. 695)
per pro. (per procurationem)	(L)	By the agency of
par excellence	(L)	Superior excellence
per annum	(L)	Yearly
per capita*	(L)	Per head
per centum per cent)	(L)	Per hundred
per diem, per mensem	(L)	Per day, per month
per se	(L)	By itself
p. m. (post meridiem)	(L)	After mid day (Afternoon)
post mortem	(L)	After death
prima facie	(L)	On the face of it
pro bono publico	(L)	For the public good
pro rata	(L)	In proportion
pro tempore	(L)	For the time being
P.S. (postscript)	(L)	Written after
P.P.S. (post post scriptum)	(L)	An additional postscript
quasi	(L)	Half of seemingly so
quid pro quo	(L)	Something done in return for something else
quod vide (q.v./ vide	(L)	Which see/see
quo vadis?	(L)	Whither goest thou?
repondez s'ilvous plait (R. S. V. P.)	(Fr)	Reply, if you please or please answer (this invitation)

R.I.P. requiescat in pace	(L)	May he (or she) rest in peace
raison d' etre	(Fr)	Reason of being
raison d' etat	(Fr)	Reason of state
res judicata	(L)	A matter already decided
sic.	(L)	So. (Usually in brackets and added to indicate that the original is being faithfully reproduced even though incorrect or apparently so;
sine die	(L)	Without a day appointed, indefinitely
sic passim	(L)	So throughout
sub judice	(L)	Under consideration, especially when a case is pending before a court.
sub poena	(L)	Under a penalty (usually in a summons by court)
sub rosa	(L)	Literally under the rose, privately
sine qua non	(L)	Without which not, indispensable
sance souce	(L)	Without care
status quo	(L)	Existing state or condition
status quo ante	(L)	The previously existing state or condition
sang froid	(L)	Calmness in the face of danger
supra	(L)	Above
Summum bonum	(L)	The chief good
sui juris	(L)	In one's own right
tete a tete	(L)	A private, usually free talk
tour de main	(Fr)	A feat of skill
intra vires	(L)	Within one's powers
ultra vires	(L)	Beyond one's powers
versus (vs)	(L)	Against
via media	(L)	A middle way
vice versa	(L)	The other way round conversely
videlicet (viz)	(L)	Namely
vis a vis	(L)	Facing one another, in relation to/in comparison with other things
viva voce	(L)	By oral testimony. oral interview.
volte face	(L)	Right about turn, change of position
vis major	(L)	Superior power in law, an act of God

Strictly it is 'per caput' (per head). See *Modern English Usage*, p. 628.

Peccavi

"I have sinned" also "I have Sind"—a historic pun on the word "Sinned". Sir Charles Napier, the representative of the Br. Government in Sind is reported to have used this expression to convey the news of his victory over the Amirs of Sind to the Governor General, Lord Ellenborough, on 4th April 1843. The conquest of Sind was the meanest act of aggression committed by the British in India. Sir Charles himself described it as "a very beneficent piece of rascality."

II

INITIALISMS AND ACRONYMS

These two types of abbreviations belong to the same literary lineage. They are derived from the letters of words occuring in the original names. Pure initialisms are formed from the first letters of the words that constitute the original names. USA (United States of America) and USSR (Union of Socialist Soviet Republics), for example. These initialisms are generally marked by intervening full-stops between the letters[*]

Acronyms are abbreviations formed out of the letters of the words constituting the original names but not necessarily the first letters, nor letters from all the words. They are distinguished by the fact that these letters when put together often form words or at least have the semblance of words and are therefore written down without intervening full-stops, as in initialisms.

Among the initialisms and acronyms that have mushroomed up in recent years some have evolved as new words, their antecedents being completely forgotten. RADAR (Radar) for *Radio Detection And Range* and LASER (Laser) for *Light Amplification by Stimulated Emission of Radiation* are instances in point.

AA	Automobile Association, Auto aircraft
ABC	Audit Bureau of Circulation
ABM	Anti Ballistic Missile
AC	Alternating Current (Electricty) also ante Christum, that is B C (Before Christ) in reckoning years [†]
ACC	Auxiliary Cadet Corps
ACII	Associate of the Chartered Insurance Institute (Britain)
ACIS	Associate of the Chartered Institute of Secretaries (Britain)
ACTH	Ardrenocorticotrophin, a hormone secreted by the pituitary gland (Synthetic substitute)
A/c	Account
ADB	Asian Development Bank
AEC	Atomic Energy Commission (India)
AH	Anno Hegirae—In the year of the Hegira, that is, from the flight of Mohammad from Mecca to Medina on Sept. 13, A.D 622.
AIA	Associate of the Institute of Actuaries (India)
AICC	All India Congress Committee
AIFF	All India Football Federation
AILTA	All India Lawn Tennis Association
AIMA	All India Manufacturers' Association
AIIMS	All India Institute of Medical Sciences
AINEC	All India Newspaper Editors Conference
AITUC	All India Trade Union Congress
AIR	All India Radio
AIRF	All India Railwaymen's Federation
AMI Chem E	Associate Member of the Institute of Chemical Engineers

---

[*] The full-stops are now being conveniently omitted by writers and printers so that U.S.A. is now just USA and U.S.S.R. simply USSR.

[†] Some people especially in India use A.C. in the sense of after Christ, that is AD. A.C. in the sense of Before Christ is therefore likely to cause confusion.

A M C	Army Medical Corps
A M I C E	Associate Member of the Institute of Civil Engineers
A M I E E	Associate Member of the Institute of Electrical Engineers
A M I Mrch E	Associate Member of the Institute of Mechanical Engineers
A N Z A C	Australia New Zealand Army Crops
A N Z U S	Australia, New Zealand and United States (Pacific Pact)
A P	Andhra Pradesh
A P A	Associated Press of America
A R C A	Associate of the Royal College of Arts (Britain)
A R C M/O	Associate of the Royal College of Music/ Organists (Britain)
A R C S	Associate of the Royal College of Science (Britain)
A R I B A	Associate of the Royal Institute of British Architects (Britain)
A R I C	Associate of the Royal Institute of Chemistry (Britain)
A S C O M	Arvi Satellite Communication Project (India)
A S E A N	Association for South East Asian Nations
A S H	Action on Smoking and Health (U S A)

B

B A	British Academy/ Bachelor of Arts (*Baccalaureus Artium*)
B A R C	Bhabha Atomic Research Centre (India)
B C	Before Christ
B D	Bachelor of Divinity
B D S	Bachelor of Dental Surgery
B B C	British Broadcasting Corporation
B Com/M Com	Bachelor of Commerce/ Master of Commerce
B C G	Bacillus Calmette Guerin (an anti-tuberculosis vaccine developed by two French Doctors—Calmette and Guerin)
B C L/D C L	Bachelor of Civil Law/ Doctor of Civil Law
B E L	Bharat Electronics Ltd
B E/M E	Bachelor of Engineering/Master of Engineering
B E N E L U X	Belgium, Netherlands and Luxembourg
B Ed/M Ed	Bachelor of Education/ Master of Education
bhp	Brake horse power
B I S	British Information Service/Bank for International Settlements
B K D	Bharatiya Kranti Dal-political party (India)
B L/L L B	Bachelor of Law
B M A	British Medical Association
B Mus	Bachelor of Music
B O A C	British Overseas Airways Corporation
B Pharm/ M Pharm	Bachelor of Pharmacy, Master of Pharmacy
B S/B Sc	Bachelor of Science
Bt	Baronet
BTech/MTech	Bachelor of Technology/ Master of Technology
B T U/ B Th U	British Thermal Unit

C

C	Celsius, Centigrade
C A	Chartered Accountant
Cantab	Of Cambridge (*Cantabrigiensis*)
C A R E*	Co-operative for American Relief Everywhere
C A S T A S I A	Conference on Application of Science and Technology (Asia)
C B	Companion of the Bath (Britian)
C B E	Commandor of the British Empire
C B I	Central Bureau of Investigation (India)
c c	Cubic centimetre
C C I	Cricket Club of India (Bombay)
C D S O	Companion of the Distinguished Service Order (Britain)
C E N T O	Central Treaty Organisation (U S, Turkey, Iran and Pakistan)
cf	Confer
C G S	Chief of the General Staff; Centimetre—Gramme—Second system

---

[*] Originally E stood for *Europe*. Later when the services of C A R E were extended beyond Europe, it was changed to *Everywhere*.

CGHS	Central Government Health Service (India)
CH	Companion of Honour (Britain)
ChB	Bachelor of Surgery (*Chirurgiae Baccalaureus*)
ChM	Master of Surgery (*Chirurgiae Magister*)
CIA	Central Intelligence Agency (USA)
CID	Criminal Investigation Department (India)
C in C	Commander in Chief
CITU	Centre of Indian Trade Unions
cif	Cost, Insurance, Freight (commercial term)
CIE	Companion of the Indian Empire
CJ	Chief Justice
CMG	Companion of (the order of) St. Michael and St. George (Britain)
CMS	Church Missionary Society (London)
CO	Commanding Officer
Co	Company
C/o	Care of
CORE	Congress of Racial Equality (USA)
cp	Compare
CPI	Communist Party of India
CPM	Communist Party (Marxist) of India
CPML	Communist Party (Marxist-Leninist) of India
CSI	Church of South India
CSIR	Council of Scientific and Industrial Research (India)
CTO	Central Telegraph Office
CVO	Commander of the (Royal) Victorian Order (Britain)
CWPC	Central Water and Power Commission (India)

D

d	*Denarius* or *denarii* (penny, pence), Britain
DA	Dearness Allowance
DBE	Dame (Commander) of the British Empire (Britain)
DC	Direct Current (Electricity), District of Columbia (Washington D C)
DD	Doctor of Divinity (Theology)
DDS	Director of Dental Surgery
DDT	Dichloro diphenyl trichloro-ethane (insecticide)
DIG	Deputy Inspector General of Police
DLO	Dead Letter Office (now Returned Letter Office) (India)
D Litt.	Doctor of Literature or Letters (*Doctor Litterarum* or *litteraturea*)
DMK	Dravida Munnetra Kazhagam (Political party, Tamil Nadu)
DNA	Deoxyribo Nucleic Acid —basic element of all living cells
DORA	Defence of the Realm Act (Britain)
DPI	Director of Public Instruction (Education)
D Phil.	Doctor of Philosophy (a general doctoral degree awarded in all subjects)
D Sc/Sc D	Doctor of Science (*Scientiae doctor*)
DSO	Distinguished Service Order (Britain)
DVC	Damodar Valley Corporation (India)

E

EACSO	East African Common Services Organisation, Nairobi
E&OE	Errors and Omissions Excepted (Commercial term mostly used in bills)
ECAFE	Economic Commission for Asia and the Far East
ECE	,, for Europe
ECA	,, for Africa
ECLA	,, for Latin America
ECOSOC	Economic and Social Council (UN)
ECSC	European Coal and Steel Community, Luxembourg
EEC or ECM	European Economic Community or European Common Market, Brussels
EFTA	European Free Trade Association, Geneva
EPNS	Electroplated Nickel Silver

E S I	Employees' State Insurance
F A C T	Fertilizers and Chemicals Travancore Ltd.
F A O	Food & Agriculture Organisation
F A T S	Fight to Advertise the Truth about Saturates (USA)
F B A	Fellow of the British Academy
F B I	Federal Bureau of investigation (USA)
F C I	Food Corporation of India/Fertiliser Corporation of India
F E D O	Fact Engineering and Design Organisation (India)
F I C C I	Federation of the Indian Chamber of Commerce and Industry
F I A	Fellow of the Institute of Actuaries
F I F A	International Federation of Football Associations
F I T	Forest Industries Travancore Ltd.
F L S	Fellow of the Linnaean Society
F P S	Fellow of the Philological Society (Britain)
F R A M	Fellow of the Royal Academy of Music (Britain)
F R A S	Fellow of the Royal Astronomical Society, Royal Asiatic Society (Britain)
F R C P/E	Fellow of the Royal College of Physicians Edinburgh (Britain)
F R C S/E	Fellow of the Royal College of Surgeons, Edinburgh (Britain)
F R G S	Fellow of the Royal Geographical Society (Britain)
F R Hist. S	Fellow of the Royal Historical Society (Britain)
F R H S	Fellow of the Royal Horticultural Society (Britain)
F R I B A	Fellow of the Royal Institute of British Architects
F R S	Fellow of the Royal Society (Britain)
F R S A	Fellow of the Royal Society of Arts(Britain)
F R S L	Fellow of the Royal Society of Literature (Britain)
G A T T	General Agreement on Tariffs and Trade
G C M	Greatest Common Measure (arithmetic)
G D R	German Democratic Republic(East Germany)
G H Q	General Headquarters
G I	Government or (general) issue—hence, common soldier (US Army)
G M T	Greenwich Mean. Time
G O	Government Order
G O C	General Officer Commanding
G P O	General Post Office
G S O	General Staff Officer

H

H	Hydrant (connection in the water main to be opened to release water, in case of fire); also Hydrogen
H A L	Hindustan Aeronautics Ltd.
H C F	Highest Common Factor (arithmetic)
H E	His (Her) Excellency
He	Helium
H E C	Heavy Engineering Corporation (India)
H E L	Heavy Electricals Ltd
H G	His (Her) Grace
H H	His (Her) Highness
H I H	His (Her) Imperial Highness
H M	His (Her) Majesty
H M S	His (Her) Majesty's Service
H M T	Hindustan Machine Tools
Hon.	Honourable/Honorary
H Q	Headquarters
hr	Hour
H S L	Hindustan Steel Ltd.

I

I A M C	Indian Army Medical Corps
I A R I	Indian Agriculture Research Institute (Pusa Institute)New Delhi
I A F	Indian Air Force
I A E A	International Atomic Energy Agency, Vienna
I A O C	Indian Army Ordinance Corps
I A S	Indian Administrative Service

IA&AS	Indian Audit and Accounts Service
IATA	International Air Transport Association
IBM	International Business Machines (USA)
IBRD	International Bank of Reconstruction and Development, Washington D C
ICAO	International Civil Aviation Organisation, Montreal
ICAR	Indian Council of Agricultural Research, New Delhi
ICBM	Inter-Continental Ballistic Missile
ICC	International Control Commission, Indo-China
ICI	Imperial Chemical Industries (Britain)
ICMR	Indian Council of Medical Research
ICCR	Indian Council of Cultural Relations
ICFTU	International Conference of Free Trade Unions
ICWA	Indian Council of World Affairs
IENS	Indian and Eastern Newspapers Society
IFA	Indian Football Association
IFC	Industrial Finance Corporation, India / International Finance Corporation, Washington
IFS	Indian Foreign Service (Diplomatic personnel)
IFWJ	Indian Federation of Working Journalists
IFTU	International Federation of Trade Unions
IIPA	Indian Institute of Public Administration
IISCO	Indian Iron and Steel Company Ltd.
IIT	Indian Institute of Technology—Delhi, Kanpur, Bombay, Madras, Gorakhpur
ILO	International Labour Organisation, Geneva
IMF	International Monetary Fund, Washington
INS	Indian Naval Ship
INTELSTAT	International Telecommunication Satellite
INRI	Jesus of Nazareth, King of Jews *(Jesus Nazarenas Rex Judaeorum)*
INRWF	Indian National Railway Workers' Federation
INTERPOL	International Police
INTUC	Indian National Trade Union Congress
IOC	Indian Oil Corporation
IOU	I Owe You (a simple form of acknowledging a debt)
IPC	Indian Penal Code
IPS	Indian Police Service
IQ	Intelligence Quotient
IRBM	Intermediate Range Ballistic Missile
IST	Indian Standard Time
ISI	Indian Standards Institution
ISMA	Indian Sugar Mills Association
ITI	Indian Telephone Industries Ltd/Industrial Training Institute
ITO	International Trade Organisation/Income Tax Officer
ITU	International Telecommunication Union, Geneva
IMCO	Inter-governmental Maritime Consultative Organisation, London
INCOSPAR	Indian National Committee for Space Research
ISRO	Indian Space Research Organisation

J

JAL	Japan Air Lines
JCO	Junior Commissioned Officer
JP	Justice of the Peace
JS	Bharatiya Jan Sangh (Political party, India)

K

K/k	Degree Kelvin/*Kalium* (Potassium)
KANU	Kenya African National Union (political party in Kenya)
KB	Knight of the Bath/Knight Bachelor/King's Bench
KBE	Knight Commander of the British Empire†

---

† Most British Royal honours have three grades (1) Companion or Commander (2) Knight Commander (3) Knight Grand Commander. Thus, C I E, K C I E, G C I E.

K C or Q C	King's Counsel or Queen's Counsel—a distinction conferred on distinguished lawyers in Britain.
K C B	Knight Commander of the Bath (British Royal Honour)
K C I E	Knight Commander of the Indian Empire (do)
K C S I	Knight Commander of the Star of India (do)
K C M G	Knight Commander of the Order of St. Michael and St. George (do)
K C V O	Knight Commander of the Victorian Order (do)
K G	Knight of the Garter (considered the highest British Royal honour)
K G C B	Knight of the Grand Cross of the Bath (do)
K K K	Ku-Klux-Klan—a secret anti-Negro terrorist society in USA
K T	Knight of the Thistle (Scottish Order)-British Royal Honour
Kt	Knight (do)
kw	Kilowatt

L

L A B E L	Law Students for Buyer Education in Labelling (USA)
L A S E R	Light Amplification by Stimulated Emission of Radiation
L C C	London County Council
Lib	Liberation; also *liber* (book)
L I C	Life Insurance Corporation of India
Litt. D	Doctor of Letters
L L M/D	Master of Law/Doctor of Law
L M S	London Missionary Society
L R C P	Licentiate of the Royal College of Physicians (Britain)
L R C S	Licentiate of the Royal College of Surgeons (Britain)
L S D	Lysergic Acid Diethylamide, a drug used as a stimulant especially by the younger generation/*Librae, solidi denarii* (pound, shilling, pence)
Lt.	Lieutenant
Lt. Col	Lieutenant Colonel

M

M	Monsieur (Fr) Mister
M A	Master of Arts (*Mgister Artium*)
M A S E R	Micro Wave Amplification of Stimulated Emission of Radiation
M B	Bachelor of Medicine (*Medicinae Baccalaureus*)
M B E	Member of (the order of) the British Empire
M B B S	Bachelor of Medicine and Bachelor of Surgery
M C	Military Cross—a British order of gallantry
M C C	Marylebone Cricket Club—Britain
M D	Doctor of Medicine
M I C E	Member of the Institute of Civil Engineers, India
M I	Military Intelligence, Britiain
M I 5	Cell or division in M. I. dealing with security and counter-espionage (Britain)
M L A	Member of the Legislative Assembly (Lower House in the States) India
M L C	Member of the Legislative Council (Upper House in the States) India
Mlle	Mademoiselle (Fr) Miss
Mlles	Mesdemoiselles (Fr)—plural of Mlle
Mme	Madame (Fr)
Mmes	Mesdames (Fr) plural of Madame
M M T C	Minerals and Metals Trading Corporation Ltd , India
M P	Member of Parliament, Madhya Pradesh
m p h	Miles per hour
M R A	Moral Re-armament—an international movement
M R A S	Member of the Royal Asiatic Society
M R C P	Member of the Royal College of Physicians, Britain
M R C S	,, College of Surgeons
M R C V S	,, College of Veterinary Surgeons
M S	Master of Surgery/ Master of Science (USA)
M Sc	Master of Science
M S/M S S	Manuscript/Manuscripts
M V O	Member of the (Royal) Victorian Order (Britain)

N

N	North
NAFEN	Near and Far East News Agency
NASA	National Aeronautics and Space Administration Agency (USA)
NATO	North Atlantic Treaty Organisation
NCC	National Cadet Corps, India
NCDC	National Co-op. Development Corporation, India
NCERT	National Council of Educational Research & Training, India
NCO	Non-Commissioned Officer
NDA	National Defence Academy, Khadakvasla, India
NDC	National Development Council, India
NEFA	North East Frontier Agency, now named Arunachal Pradesh
NFIR	National Federation of Indian Railwaymen
NISI	National Institute of Science of India
NMDC	National Mineral Development Corporation of India
NOW	National Organisation of Women USA (a women's lib. organisation)
NPC	National Productivity Council, India
NP	Notary Public
NSPCA/C	National Society for the Prevention of Cruelty to Animals/Children (Britain)
NT	New Testament
NUT	National Union of Teachers (Britain)
NY	New York

O

O	Oxygen
OAS	Organisation of American States, Washington DC
OAU	Organisation of African Unity, Addis Ababa
OBE	Officer of the (Order of) British Empire (British Honour)
OC	Officer Commanding
OCAM	Organisation Commence Africament Malagache (Organisation of French-speaking African states) Yaounde, Cameroon
OED	Oxford English Dictionary or the New English Dictionary
OECD	Organisation for Economic Co-operation and Development, Paris (See OEEC)
OEEC	Organisation for European Economic Co-operation (was renamed OECD in 1951)
OGL	Open General Licence (Imports)
OHMS	On His Majesty's Service
OIL	Oil India Ltd.
OIGS	On India Government Service
OK	All Correct
OM	Order of Merit (Britain)
ONGC	Oil & Natural Gas Commission (India)
OT	Old Testament

P

PA	Press Association/Personal Assistant
PAA	Pan American Airways
pc	Per centum/postcard
PDA	Preventive Detention Act
PEN	Poets, Playwrights, Essayists, Editors and Novelists, (International club)
Ph. D	Doctor of Philosophy (a general doctoral degree awarded in all disciplines)
PIN Code	Postal Index Number Code (India)
PKI	Partai Kammunis Indonesia (Communist Party of Indonesia)
pl.	Plural
PL 480	Public Law 480 (Enactment in USA under which foreign aid is given)
pm	After Midday (after noon)
PM	Prime Minister
PMG	Post Master General

POW	Prisoner of War
PRO	Public Relations Officer
PSP	Praja Socialist Party (Political party, India)
PTI	Press Trust of India (News Agency)
PWD	Public Works Department

Q

Q	Queue
QMG	Quarter Master General

R

R	Recipe, (take) usually found in doctors' prescriptions
RA	Royal Academy (Britain)
RADAR	Radio Detection And Range
RAF	Royal Air Force
R and D	Research and Development
RBI	Reserve Bank of India
RE	Royal Engineers (Britain)
RH	Royal Highness
RLO	Returned Letters Office (See DLO)
RMA	Royal Military Academy/Royal Marine Artillery (Britain)
RMS	Railway Mail Service
RN	Royal Navy
RPM	Revolutions per minute
RSS	Rashtriya Swaya Sevak Sangh (A paramilitary political party, India)
RSFSR	Russian Soviet Federated Socialist Republics

S

SA	Nazi Storm Troopers (Germany)
SACLANT	Supreme Allied Commander Atlantic Area (Attached to NATO)
SACUER	Supreme Allied Commander Europe (Attached to NATO)
SALT	Strategic Arms Limitation Talks
SAM	Surface to Air Missiles
SC	Supreme Court
SCM	Student Christian Movement
SDO	Sub Divisional Officer
SDR	Special Drawing Rights (on IMF)
SEATO	South East Asia Treaty Organisation, Bangkok
SHAPE	Supreme Headquarters of Allied Powers in Europe
SJ	Society of Juses
SLFP	Sri Lanka Freedom Party (Political party, Sri Lanka)
SMASH	Students Mobilising on Automobile Safety Hazards (USA)
SOCONY	Standard Oil Company, New York
SOS	Save our Souls (message of distress)
SOUP	Students Opposing Unfair Practices in Trade (USA)
SP	Superintendent of Police
SPCA/C	Society for the Prevention of Cruelty to Animals/Children
SPCK	Society for the Propagation of Christian Knowledge
SS	Schutzstaffel (Ger.) Hitler's bodyguard
SSB	Services Selection Board
STC	State Trading Corporation Ltd.
SUNFED	Special United Nation's Fund for Economic Development

T

TA	Travelling Allowance
TB	Tubercle Bacillus (Tuberculosis)
TELCO	Tata Engineering and Locomotive Company Ltd.
TERLS	Thumba Equatorial Rocket Launching Station, Trivandrum, India
TISCO	Tata Iron and Steel Co. Ltd.
TMO	Telegraphic Money Order
TNT	Trinitrotoluene (an explosive)
TTR (now TTE)	Travelling Ticket Examiner (India)
TUC	Trade Union Congress
TVA	Tennessee Valley Authority (USA)
TWA	Trans World Airlines

UGC	University Grants Commission, India
UK	United Kingdom. (Great Britain and N. Ireland)
UNO	United Nations Organisation
UNDP	United Nations Development Programme
UNAEC	United Nations Atomic Energy Commission
UNCIP	United Nations Commission for India and Pakistan (on Kashmir question) now functus officio
UNCTAD	United Nations Conference on Trade and Development
UNEDA	United Nations Economic Development Administration
UNEF	United Nations Emergency Force
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNI	United News of India (News Agency)
UNICEF	United Nations International Children's Fund. Originally established as the International Children's Emergency Fund, it was renamed the International Children's Fund later. But the old abbreviation still continues
UNIPOM	United Nations India Pakistan Observation Mission, now functus officio
UNRRA	United Nations Relief and Rehabilitation Administration
UP	Uttar Pradesh, India
UPSC	Union Public Service Commission, India
USA	United States of America
USAID	United States Agency for International Development
USI	United States of Indonesia
USIS	United States Information Service
USSR	Union of Socialist Soviet Republics

V

VC	Victoria Cross (British award); Vice Chancellor
VD	Venereal Diseases
VIP	Very Important Person
VPP	Value Payable by Post

W

WAY	World Assembly of Youth
WAAC	Women's Auxiliary Air Corps, Britain
WEU	Western European Union
WFTU	World Federation of Trade Unions
WHO	World Health Organisation.
WMO	World Meteorological Organisation
WRNS	Women's Royal Naval Service (Britain)
WRAC	Women's Royal Army Corps (Britain)
WRAF	Women's Royal Air Force (Britain)
WTUC	World Trade Union Congress

X

X or Xt	Christ
X or Xmas	Christmas

Y

YHA	Youth Hostels Association (Britain)
YMCA	Young Men's Christian Association
YMA	Young Men's Association
YWCA	Young Women's Christian Association

Z

ZANU	Zimbabwe African National Union (Rhodesia)
ZAPU	Zimbabwe African People's Union
ZIP Code	Zonal Improvement Plan Code (Postal arrangement USA)

THE SUPERLATIVES

Natural Phenomena

1 **Largest Continent:** Asia—16,988,000 sq. miles—29 5 per cent of the world's total land area.

2 **Smallest Continent:** Australia–2,975,000 sq. miles—5.2 per cent of the world's land surface.

3 **Largest State:** U S S R—8,649,550 sq. miles

4 **Smallest State:** Vatican—108.7 acres.

5 **Largest Ocean:** Pacific—64,186,300 sq. miles -46 per cent of the world's water.

6 **Smallest Ocean:** Arctic Ocean 5.440,197 sq. miles.

7 **Largest Sea:** South China Sea—11,48,500 sq miles with an average depth of 4,802 feet.

8 **Largest Island:** Greenland -Area 840,000 sq. miles

9 **Largest Atoll:** (i) Water area—Kwajalein in the Marshall Islands, Central Pacific Ocean. Area of water (lagoon) –1,100 sq. miles. Length of land (coral reef) surrounding water 176 miles.

(ii) Land area – The atoll with the largest land area is Christmas Island in the Line Islands in Central Pacific. Area of land—184 sq. miles.

10 **Longest Coral Reef:** Great Barrier Reef, Australia. Length - 1,260 miles.

11 **Largest Lake:** Caspian Sea (USSR) and Iran) Area—143,550 sq. miles.

12 **Largest Freshwater Lake:** Lake Superior (U S A and Canada)—31,820 sq. miles.

13 **Highest Navigable Lake:** Lago Titicaca (Peru-Bolivia) at 12,506 feet above sea level. Area 3,200 sq, miles.

14 **Deepest Lake:** Lake Baikal (USSR) maximum depth 6,365 (feet: that is, 4,872 feet below sea level.

15 **Greatest Ocean Depth:** Off the island of Mindanao, Philippines—37,782 feet.*

16 **Longest Strait:** Straits of Malacca (between Malaysia and Sumartra—Indonesia)—485 miles long.

17 **Broadest Strait:** Mozambique Straits (between Mozambique & Madagascar) Maximum breadth 245 miles.

18 **Narrowest Strait:** Between the Greek mainland and the island of Euboea in the Aegean Sea Narrowest point at Chalkis—45 yds.

19 **Largest Bay:** Bay of Bengal—Shorline 2,250 miles.

20 **Largest Gulf:** Gulf of Mexico. Shoreline—3,100 miles.

21 **Largest Archipelago:** Indonesia—over 3,000 islands.

22 **Highest Peak:** Mount Everest (Nepal-Tibet) 29,028 feet

23 **Highest Plateau:** Tibet.

24 **Longest Mountain System:** Andes, South America.

25 **Largest Peninsula:** Arabia—1,250,000 sq. miles.

26 **Highest Volcanoes:** (i) Extinct—Cerro Aconcagua (22,834 feet) in the Andes, Argentina.

(ii) Dormant—Volcan Llullaithaco (22,058 feet), Chile, Argentina.

(iii) Active—Volcan Guayatire or Gual latire (19,882 feet) in Chile Last eruption in 1959.

27 **Tallest Active Geyser:** Giant (geyser; Yellowstone Park, U S A—200 feet high.

28 **Longest River:** Amazon, South America—4,195 miles.

29 **Greatest Flow:** Amazon –average flow 4,200,000 c.ft per second. Flood flow 7,000,000 cusecs (c ft per second).

30 **Largest River Basin:** Amazon basin—2,720,000 sq. miles.

31 **Largest Delta:** Sunderbans (India and Bangladesh) formed by Ganga and Brahmaputra rivers—30,000 sq. miles.

32 **Largest Desert:** Sahara, Africa—3,250,000 sq. miles.

33 **Greatest Waterfall:** (i) By height—Angel Waterfall, Venezuela (on the Carrao river). Total drop 3,212 feet. Longest single drop 2,648 feet.

(ii) By volume of water—Guaira (Brazil Paraguay). Annual average flow in cubic feet per second—470,000 Peak flow—1,750,000 cusecs. Height—374 feet.

(iii) Widest waterfall — Khone Falls (Laos), width 6.7 miles. Flow 1,500,000 c. ft. per second. Height 50–70 feet.

---

* In 1962, soundings by H. M. S. Cook off Mindanao, in the Philippines showed a depth of 37,782 feet. This was announced by the British Admiralty in Nov. 1962.

34 **World's Rainiest Spot:** Cherrapunji, India—1 month 366.14 in. (Record in July 1861) 1 year 1041 78 in. (Record in Aug. 1860 to July 1861)

35 **World's Wettest Spot:** Mt. Wailleale, Hawaii—annual average rain 460 in.

36 **Driest Spot:** Atacama Desert, Chile—rainfall barely measurable.

37 **Coldest Spot:** Vostok, Antarctica —127°F. (Record in 1960).

38 **Hottest Spot:** Al Aziziyah, Libya—136° F. (Record in 1922.)

39 **Northernmost Town:** Ny Alesund, Spitsbergen, Norway.

40 **Southernmost Town:** Puerto Williams, Chile.

41 **Highest Capital City:** Lhasa, Tibet. 12,087 feet (Technically, no longer a capital city since Chinese occupation) La Paz, Bolivia—11,916 feet above sea-level

42 **Highest Town:** Wenchuan, Tibet—16,732 feet.

43 **Highest Village:** Aucanquilca, in Andes Mountains, Chile—17,500 ft.

44 **Lowest Town:** Villages along the Dead Sea—1,269 feet below sea level.

45 **Largest Gorge:** Grand Canyon, Colorado river, Arizona—217 miles long, 4 to 13 miles wide, 1 mile deep.

46 **Deepest Gorge·** Hells Canyon, Snake River, Idaho 7,900 feet deep.

47 **Strongest Surface Wind:** 231 mph; recorded in 1934 at Mount Washington, New Hampshire.

48 **Greatest Tides:** Bay of Fundy, Nova Scotia—53 feet

49 **Biggest Meteor Crater:** Barrington Crater, Arizona, USA—4,150 feet diameter.

50 **Largest Meteorite:** Recovered from Hoba, near Grootfontein in South West Africa—Length 9 feet, breadth 8 feet, weight 132,000 lbs.

51 **Largest Planet:** Jupiter—Polar diameter—82,790 miles

52 **Smallest Planet:** Mercury—diameter 2,900 miles.

53 **Largest Satellite:** Titan, seventh satellite of Saturn—diameter 3,350 miles.

54 **Smallest Satellite:** Deimos, outer moon of Mars. Diameter—5 miles.

55 **Largest Asteroid:** Ceres—diameter, 436 miles.

56 **Largest Constellation:** Hydra (Sea Serpent) covering 1,302.84 sq. degrees and containing 68 stars visible to the naked eye.

57 **Lightest Gas:** Hydrogen.

58 **Lightest Metal:** Lithium.

59 **Highest Melting Power.** Tungsten (3,410°C).

60 **Hardest Substance:** Diamond, 90 times harder than the next hardest corundum.

61 **Largest Uncut Diamond:** Cullinan diamond (over 1¼ lbs), recovered from the Premier Mine, Pretoria (S. Africa) and named after the chairman of the mine, Thomas Major Cullinan

62 **Largest Cut Diamond:** Star of Africa No. 1—set in the British Royal sceptre—cut from the Cullinan diamond with 74 facets and 530 2 metric carats (weight).

63 **Largest Pearl:** Pearl of Allah or Pearl of Lao Tse—9½ in. long 5½ in. diameter and 14 lbs 1 oz weight; recovered from the shell of a giant clam from the Philippine seas.

64 **Largest Animal·** Blue whale Longest recorded length, 106 feet, Highest calculated weight 195 tons

65 **Longest Life span of animals:** Giant tortoise 190 to 200 years.

66 **Largest Land Animal:** African elephant -height (average) 10 feet 6 ins· weight (average) 6½ tons.

67 **Tallest Land Animal:** Giraffe. Highest recorded height -19 feet 3 in. Highest recorded weight—3,800 lbs.

68 **Swiftest Bird:** Spine-tailed swift. Highest speed recorded 106 25 mph.

69 **Fastest Animal:** Cheetah—short run speed 70 mph Long run speed (over 500 yards) 44 mph.

70 **Longest Jump:** Kangaroo — 12 80 metres.

71 **Largest Bird:** Ostrich—Weight 135 kg Height 2 40 metres. Running speed 50 km. per hour·

72 **Smallest Bird:** Humming bird—wing span 1½ in., weight 2 grammes, overall length - 2 2 to 2 6 in.

73 **Longest Wing Spread:** Albatross, wing span—3.70 metres.

74 **The Slowest Animal.** Snail—0.03 mph.

75 **Heaviest Domestic Dog:** St. Bernard. Heaviest weight on record 295 lbs.

76 **Tallest Domestic Dog:** Irish wolf hound—height 39½ in·

77 **Smallest Domesticated Dog:** Chihuahua—average weight, 2 to 4 lbs., some weigh as low as 16 oz

78 **Fastest Dog:** Persian grey-hound - speed up to 43 mph.

79 **Longest Snake:** Anaconda. South America 37½ feet.

80 **Longest Poisonous Snake:** King Cobra or Hamadryad—18 feet 4 in.

81 **Fastest Snake:** Black Mamba of Africa—20 mph.

82 **Biggest Leaves:** The Rafia palm, a native of Madagascar, has the biggest leaf. Its mammoth pinnate leaf is about 22 m. long and 12 m. wide, with a leaf stem 5 m. long.

83 **Biggest Flower:** Rafflesia, a native of the island of Java, produces the biggest flower. Its fleshy red and dotted flower of five lobes is up to 1.5 m in diameter. Rafflesia is a parasite on the roots of tropical trees. Its flowers grow from under the bark of the host plant, like a bud and open out into flower.

84 **The Largest Tree:** Sequoia tree named 'General Sherman' in Sequoia National Park, California Height--272 feet 4 in Base circumference 101 feet 7 in. Base diameter, maximum—34 feet Total volume 49,660 cubic feet.

85 **The Oldest Tree in the World:** The Mein Yuch (Sleeping Moon),sacred tree on Mount Ali in Central Taiwan, is officially estimated to be 4,128 years old The tree is still living and full of verdure. Vital statistics: Height 48 metres—Circumference around the bust 20 metres—around the stump 20.9 metres—Diameter of the bust 6.37 metres—the stump 6.66 metres Bulk of the tree, above the ground 6,155 cubic metres This tree is older and larger than the famous Alishaw Sacred Tree (also in Taiwan) which is reputed to be 3,000 years old and dying.*

II

Man made Structures

1 **Tallest Building:** Sears Tower, Chicago 1454 feet in height with 110 floors. Total estimated cost—150 million dollars Rs 112.60 crores)—Higher than the Empire State Building (1250 feet) and World Trade Centre (1350 feet) both of which are in New York. The final girder on Sears Tower was placed on May 5, 1973.

2 **Largest Residential Palace:** Vatican Palace, covering an area of 13½ acres. It has 1400 rooms, halls and chapels.

3 **Largest Stadium:** Strahoo Stadium in Prague (Czechoslovakia). Accommodates 240,000 spectators.

4 **Tallest Tower:** T. V. Transmitting Tower, 2063 feet high, North Dakota.

5 **Largest Concrete Dam:** Grand Coulee Dam on the Columbia river, Washington (USA)—crest length 4173 feet, height 550 feet.

6 **Longest River Dam:** Hirakud Dam on the Mahanadi river, Orissa, India. Total construction length - 15.8 miles.

7 **Largest Man-made Reservoir:** Bratsk Lake on the Angara river, USSR Vol. 137,230,000 acre feet.

8 **Largest Railway Tunnel:** Simplon II -- tunnel linking Switzerland and Italy under the Alps--12 miles 559 yards length.

9 **Largest Road Tunnel:** Mt. Blanc. France--Italy, 7.2 miles

10 **Largest Dome:** (New Architecture) 'Astrodome', Harris County Sports Stadium in Houston, Texas Outside diameter 710 feet, inside diameter 642 feet.

,, (Old architecture) Gole Gumbaz, Bijapur (Karnataka) India 144 ft. diameter.

11 **Largest Wall:** Great Wall of China--1684 miles long.

12 **Largest Temple:** Angkor Wat, Cambodia - 402 acres.

13 **Largest Mosque:** Jama Masjid, Delhi (India). Area, 10,000 sq ft.

14 **Largest Church:** Basilica of St Peter. Vatican, Italy. Area—18,110 sq yds.

15 **Tallest Minaret:** Qutb Minar, Delhi, India—238 feet high.

16 **Tallest Church Spire:** (i) (New Architecture)—Chicago Temple of the First Methodist Church—568 feet high.
(ii) (Old Architecture)—Ulm Cathedral, Germany—529 feet (highest point).

17 **Biggest Bell:** Great Bell at Moscow, cast in 1733—weight 216 tons. Diameter 22 feet 8 in. Height more than 19 ft. Greatest thickness 24 in. The bell is cracked and a portion weighing 11 tons broken off

Worst Disasters

1 **Air:** March 3, 1974. A Turkish D. C Jet Plane crashed near Paris, killing 345 people.
July 30, 1971. The second worst disaster occurred near Honshu 483 km

---

* News report, *Indian Express*, June 21, 1971.

north east of Tokyo. A Japanese Boeing 727 collided with a Japanese fighter plane killing 162 people.

Sea: Feb. 18, 1945. The ship Wilhelm Gustloff (25,484 tons) sank off Danzig, killing 4120 people.

April 15, 1912. The wreck of the *Titanic*, in North Atlantic outstrips all other disasters of the sea, for its sheer drama. The *Titanic* was on its maiden voyage. Sumptuously equipped, it carried a select crew and elite passengers. It struck a floating iceberg and sank killing 1502 people. The captain and the officers, went down with the ship, to the tune of a solemn song, in the best romantic tradition.

Rail: Dec. 12, 1917. A troop train derailed at Modane, in France, killing 550 people.

March 12, 1944. The Salerno disaster which occurred in 1944 is unique. The Modane disaster killed 550 people, in one of those accidents which often happen on railways. The Salerno disaster killed 512 people, in an accident, the sort of which never before happened in railway history.

The engine stalled while the train was in the middle of a long tunnel What little oxygen there was in the tunnel, was used up by the passengers, in a matter of minutes. Then they started to gasp for air like stranded fish and one by one died of suffocation. Help came too late.

4 **Earthquake:** Jan. 23, 1556, in Shensi province, China. Lives lost estimated at 830,000.

5 **Volcano:** May 8, 1902. The eruption of Mount Pelee, Martinique, West Indies, wiped out the City of St. Pierre and killed an estimated 400,000 people.

6 **Flood:** Aug-Oct., 1931. The Yangtze river in China, flooded killing about 3,700,000.

7 **Famine:** 1877 78 The famine in north China, took a toll of some 5,500,000 lives.

8 **Fire:** 1666 AD. The Great Fire of London. Though no statistics of death are available, the Great Fire of London takes precedence as the greatest fire in recorded history. It raged for 5 days from Sept. 2 to Sept. 6. It destroyed many public buildings, 89 churches and over 13,200 houses. Those rendered homeless numbered 200,000.

May, 1845. The worst fire reported in a single building occurred in a theatre at Canton, China, killing 1670 people.

9 **Epidemic:** AD. 1347-51. The Black Death. An epidemic of bubonic plague killed off an estimated 57,000,000 people in Europe.

HISTORY

I MAJOR EVENTS OF HISTORY

3000 B.C.—1000 B.C.

Early Kingdoms

C.

3000 Menes, the legendary founder of the first Egyptian dynasty, unites Upper and Lower Egypt into one kingdom.

,, First dynasty at Ur (Sumeria).

,, Growth of Indus Valley Civilization—cities at Harappa and Mohenjadaro.

,, Hittites, an Indo-European tribe establish themselves in Asia Minor.

,, Crete, the legendary home of the Minotaur and the labyrinth, develops what is known as Early Minoan Civilization.

2980 Memphis made the capital of Egypt.

2870 Building of the City of Troy—Hittites in Asia Minor.

2850 Traditional beginnings of civilized life in China.

2650 The first pyramid (the stepped pyramid) built in Egypt.

2500 Sixth Dynasty in Egypt the collapse of the old kingdom.

,, Dominance of the Ur dynasty over all Sumeria, the development of cuneiform (wedge-shaped) writing, Lunar Calendar, Sexagesimal system (360 degrees in a circle, 60 minutes in an hour, 60 'second' minutes in a minute) etc.

2370 Sargon, the King of the Akkadians, (a Semitic tribe) conquers Sumeria and Elam and makes Agad his capital.

2200 Traditional beginnings of Hsia dynasty in China.

2130 Middle Kingdom in Egypt, hieroglyphic writing, calendar year divided into 3 seasons of 4 months each—30 days for a month and 5 extra days added to the last month, to make up a year.

2000 Kingdom of Elam attacks and destroys the Kingdom of Ur in Sumeria.

,, Growth of Cretan civilization. Middle Minoan period (2000—1580 BC)

,, Phoenicians settle on the Syrian coast—Mycenae in Greece becomes the centre of a new civilization.

,, Aryan settlements in India. Vedic civilization takes shape: The composition of the Rig Veda.

1995 Amenemht founds the 12th dynasty in Egypt.

1990 Babylonians conquer the whole of Mesopotamia, including Assyria (northern Mesopotamia) and Elam (eastern Iran).

1800 Hammurabi, the Babylonian Emperor, proclaims a code of laws.

1790 Hyksos, an Asian tribe, dispossess the 13th dynasty and occupies Egypt.

1760 Shang dynasty begins in China.

1595 Hittites overthrow Babylon.

1580 Cretan civilization at its height.

,, Jews enslaved by Egypt.

1573 Hyksos, the shepherd Kings, driven out of Egypt.

1500 Flowering of Mycenaean civilization in Greece.

1480 Moses leads Jews out of Egypt.

1400 Myceneans destroy Knossus palace at Crete. Decay of Cretan civilization.

1380 Amanhotep (Amenophis IV) revolutionises religion in Egypt and proclaims a new religion.

1362 Rebellion in Egypt. Egypt loses her outer possessions.

1345 19th dynasty in Egypt. Egypt recovers her former power.

1250 Assyrians conquer Babylon.

1200 Philistines (Phoenicians) from north Mediterranean occupy Palestine.

1200 Etruscans, an Asian people settle in Italy.

,, Hemeric Siege of Troy by Greeks (?) Downfall of the Hittite Kingdom.

1027 Chou dynasty begins in China.

1013 Rise of the Israelites in Palestine. David (1013—973) eatablishes Israelite hegemony.

1000 Egypt ceases to be a power.

,, Epic civilization in India—composition of the great epics, Ramayana and Mahabharata.

,, Phoenicians develop alphabetical writing

The Old Order Changeth
(1000 B.C.—A.D.I)

850 Phoenicians found the city of Carthage on the northern coast of Africa.

753 Traditional foundation of the city of Rome.

745 Assyrian Empire at its height.

621 Draco publishes Athenian laws.

612 Ninevah, the capital of the Assyrian Empire destroyed by a combination of Babylonians, Scythians and Medes.

610 Ionian (Sanskrit *Yavana*, Persian and Arabic *Yunani)* city states on the west coast of Asia Minor.

604 A new empire in Mesopotamia with Babylon as capital.

594 Solon reforms Athenian constitution.

586 Babylonians capture Jerusalem.

560 Croesus, reputed to be the richest king of his times, rules Lydia Lydians issue the earliest known systematic currency.

538 Cyrus founds the Persian Empire and captures Babylon.

509 Traditional foundation of the Roman Republic.

490 Battle of Marathon; Athenians defeat Persians.

480 Battle of Thermopylae; Spartans under Leonidas wiped out by Persians: Battle of Salamis (naval battle); Athenians under Themistocles rout the Persians; Death of Buddha in India.

479 Battle of Plataea and Mycale; Greek victories over Persia by land and sea respectively; Athenian supremacy in Greece begins: Final end of Persian threat; Death of Confucius in China

461 Pericles comes to power in Athens.
431 Outbreak of Peloponnesian War between Athens and Sparta.
425 Death of Herodotus.
404 Athenians surrender to Sparta; Beginning of Spartan supremacy in Greece.
399 Execution of Socrates.
371 Battle of Leuctra; Thebans defeat Spartans and become the leaders of Greece—Theban hegemony.
347 Death of Plato.
338 Battle of Chaeronea; Philip II of Macedon defeats the Greek city states and becomes supreme in Greece.
336 Alexander becomes the King of Macedon.
334 Battle of Granicus; Alexander's first victory over the Persians,
333 Battle of Issus; Alexander's second victory over Darius of Persia.
332 Alexander captures Tyre and occupies Egypt.
331 Battle of Arbela (Gaugamela); Alexander finally defeats Persians.
330 Death of Darius and the end of Persian Empire.
326 Battle of Hydaspes; Alexander defeats Porus of India and conquers the Punjab.
323 Death of Alexander at Babylon; Ptolemy I founds dynasty in Egypt; Alexandria (in Egypt) becomes the intellectual centre of the world.
321 Chandragupta Maurya establishes the Maurya dynasty in India; Death of Aristotle.
312 Selucus I founds dynasty in Asia.
275 Battle of Beneventum; Rome finally defeats Pyrrhus and the Greek cities of southern Italy; and becomes undisputed master of all Italy.
274 Asoka becomes Emperor of India.
264 Beginning of the First Punic War between Rome and Carthage.
241 End of the First Punic War; Sicily becomes the first province of Rome.
221 Shih Huang Tih completes conquest of all Chinese states.
218 Beginning of the Second Punic War; Hanibal, the Carthaginian general, attacks Rome.
214 The construction of the Great Wall of China.
213 Burning of Chinese classics.
212 Romans capture Syracuse; Archimedes killed.
202 Eastern Han dynasty in China; Hannibal defeated by the Roman general, Scipio Africanus.
201 End of Second Punic War; Rome dominates western Mediterranean.
196 Rome conquers Macedon and Greek city states.
160 Judas Maccabaeus leads successful revolt against the Seleucid dynasty.
149 Outbreak of Third Punic War.
146 Romans destroy Carthage and make it a Roman province.
124 Establishment of college in China to train civil servants.
110 China under Emperor Wu Ti expands towards south east.
106 Marius and Sulla become Roman leaders.
88 Civil war between Marius and Sulla begins.
87 Marius massacres his enemies in Rome.
82 Sulla proscribes his enemies in Rome.
60 The formation of the First Triumvirate: Pompey, (Julius) Caesar, Crassus.
58 Caesar begins conquest of Gaul.
55 Caesar's conquest of Britain.
53 Crassus defeated by Persians, falls into disgrace in Rome.
49 Caesar crosses the Rubicon and challenges Pompey.
48 Battle of Pharsalus; Caesar defeats Pompey.
46 Caesar reforms the calendar, later known as the Julian Calendar.
44 Murder of Caesar.
43 The formation of the Second Triumvirate; Antony, Octavian, (Augustus) Lepidus.
42 Battle of Philippi; Antony and Octavian defeat Brutus and his associates.
31 Battle of Actium; Octavian defeats Antony and Cleopatra and becomes the master of the Roman Empire.
27 Senate of Rome confers the title of Augustus on Octavian; Octavian becomes Caesar Augustus.
4 Birth of Jesus Christ.

Roman Empire and Christianity

(A. D. 1—476)

A. D.

6 China institutes Civil Service Examination.
14 Augustus dies.
25 Beginning of Later of Eastern Han dynasty in China.
29 Crucifixion of Christ.
63 Death of St. Paul
64 Great Fire of Rome.

68 Death of Nero; End of Julio-Claudian line of Roman emperors.
70 Emperor Titus suppresses Jewish revolt and destroys Jerusalem.
70 Vesuvius volcano erupts and destroys the famous Roman towns of Pompeii and Herculaneum.
80 Completion of the Roman Colosseum.
96 Accession of Nerva, the first of the "Five Good Emperors."
97 Chinese penetrate into Persian Gulf.
117 Death of Trajan and the accession of Hadrian; Roman Empire reaches its greatest extent.
180 Death of Marcus Aurelius, last of the "Five Good Emperors"; Beginning of the decline of the Roman Empire.
212 Emperor Caracalla gives Roman citizenship to all the free citizens of the empire.
220 Han dynasty ends in China; Period of Civil War in China begins.
230 Emperor Sujin in Japan organises a Japanese empire.
251 Goths defeat and kill the Roman emperor Decius.
284 Diocletian becomes emperor of Rome; persecution of Christians reaches its climax.
306 Constantine becomes emperor.
313 Edict of Milan gives toleration to Christians in the Roman empire.
320 The Gupta dynasty rises in India.
325 The Council of Nicaea, first General Council of the Christian Church.
378 Battle of Adrianople; Goths defeat and kill Eastern Roman emperor Valens.
395 Death of Emperor Theodosius the Great; Final division of the Roman Empire into Eastern and Western empires.
410 Alaric the Goth captures and destroys Rome. This is taken to be the end of the Roman Empire.
415 Visigoths begin conquest of Spain.
429 Vandals begin conquest of North Africa.
452 Attila invades Italy.
455 Rome pillaged by Vandals.
476 Romulus Augustulus, the last Western Roman emperor, disposed by Odovacar; The end of Western Roman Empire.

Rise of Islam (476—840)

481 Clovis becomes the King of Franks and occupies Gaul.
493 Theodoric founds Ostrogothic Kingdom in Italy.
527 Accession of the Eastern Roman Emperor Justinian I.
529 Publications of the Civil Code by Justinian.
570 Birth of Mohammed
589 Reunion of China under the Ch'en dynasty.
605 Grand Canal of China constructed
618 Tang dynasty comes into power in China.
622 Hejira or flight of Mohammed from Mecca to Medina; Beginning of the Mohammedan era.
632 Death of Mohammed; Accession of Abu Baker, the first Caliph.
636 Muslims occupy Damascus
638 Muslims capture Jerusalem.
641 Persia conquered by Muslims.
643 Muslims occupy Alexandria.
698 Muslims invade Carthage.
711 Muslims spread into Spain.
718 The greatest Muslim attack on Constantinople fails.
732 Muslim advance in Spain halted by Charles Martel.
750 Beginning of Abbasid Caliphate (replacing Ommayyads).
786 Accession of Haroun-al-Rashid in Baghdad.
800 Coronation of Charlemagne as Holy Roman Emperor.
814 Death of Charlemagne and the division of his empire.
827 Muslims invade Sicily.
840 Muslims capture Bari and occupy Southern Italy.

Rise of Nation States (840—1485)

843 Treaty of Verdun; Final division of the Carolingian Empire founded by Pipin, King of France in A D 751; Beginning of France and Germany as separate states.
862 Rurik founds Viking state in Russia, first at Novgorod, later at Kiev.
866 Fujiwara period begins in Japan.
868 The first printed book in China.
893 Simeon founds first Bulgar Empire in Balkans.
899 Death of Alfred the Great in England.
900 Ghana in North West Africa at the height of its power.

912	Accession of Abder Rahman III; The greatest period of the Ommayyad Caliphate of Cordova (Spain)
955	Battle of Lechfeld; Magyars, finally defeated by Otto the Great, settle in Hungary.
960	Beginning of Sung dynasty in China.
966	Miezko I, King of Poland, accepts Christianity.
968	Fatimids begin their rule in Egypt.
982	Norsemen discover Greenland.
987	Hugh Capet, King of France, founds Capetian dynasty.
988	Vladmir, King of Kiev, becomes Christian.
993	Olof Skutkonung, King of Sweden, converted to Christianity.
1000	Leif Ericsson discovers North America.
1016	Canute becomes King of England.
1066	William I, Duke of Normandy, conquers England.
1069	Reforms of Wang-An-Shih in China.
1071	Battle of Manzikert. Seljuks destroy Byzantine army.
1073	Gregory VII becomes Pope.
1075	Seljuk Turks capture Jerusalem.
1086	Compilation of Domesday Book in England.
1095	Council of Clermont; Pope Urban II preaches First Crusade
1099	First Crusade under Godfrey of Bouillon takes Jerusalem.
1135	Stephen becomes King of England; civil war with Matilda; anarchy follows.
1143	Alfonso Henriques becomes first King of Portugal.
1144	Muslims capture Christian stronghold of Edessa.
1148	Second Crusade fails to capture Damascus.
1152	Accession of Emperor Frederic Barbarossa.
1154	Henry of Anjou establishes the Plantagenet dynasty in England.
1161	Explosives used in warfare in China.
1176	Battle of Legnano; Frederick Barbarossa defeated by the Lombard League; Italian states become autonomous.
1185	Kamakura period in Japan; Epoch of feudalism in Japan which lasts until 1333.
1189	Third Crusade under Frederick Barbarossa, Philip Augustus of France and Richard the Lion Heart of England.
1191	Crusaders capture Acre.
1192	End of the Third Crusade without regaining Jerusalem
1204	Fourth Crusade captures Constantinople.
1206	Jengiz Khan becomes King of the Mongols and overruns Central Asia.
1212	Battle of Las Navas de Tolosa; Spaniards win decisive victory over the Muslim Moors.
1215	Fourth Lateran Council; Papal authority reaches its zenith. Magna Carta in England.
1237	Mongols invade Russia.
1241	Mongol incursions into Central Europe.
1260	Kublai Khan ruling in China.
1284	Edward I of England conquers Wales.
1291	The League of Uri; Beginnings of the Swiss Confederation; Acre falls to Muslims; Crusades end.
1309	Papacy moves to Avignon; Beginning of the *Babylonish Captivity.*
1314	Battle of Bannockburn; Robert Bruce of Scotland defeats the English army.
1336	Ashikaga period in Japan.
1338	Beginning of Hundred Years' War between England and France.
1346	Battle of Crecy; English victory over French and Scots.
1348	Black Death reaches Europe.
1356	Battle of Poitiers; Black Prince of England defeats the French.
1360	Peace of Bretigny; Edward III of England gains territories in France.
1362	English made the official language in England.
1363	Timur (Tamerlane) begins his career of conquest in Asia.
1368	Ming dynasty in China.
1377	Pope returns to Rome; End of *Babylonish Captivity.*
1381	Peasants Revolt in England.
1398	Timur invades North India.
1415	Battle of Agincourt; Henry V of England gains a decisive victory over France.
1429	Joan of Arc leads the French army and takes Orleans.
1431	Joan of Arc burnt at stake as a witch.
1438	Albert I establishes the Hapsburg dynasty.
1453	Turks capture Constantinople and ends the Byzantine or the Eastern Roman empire; End of the Hundred Years' War.

1455	First battle of St. Albans; Beginning of Wars of the Roses in England.
1469	Marriage of Ferdinand of Aragon with Isabella of Castile and the formation of the modern kingdom of Spain.
1485	Battle of Bosworth Field; Beginning of Tudor period in England.

Colonisation
(1485—1787)

1488	Bartholomew Diaz rounds Cape of Good Hope.
1492	Christopher. Columbus discovers the West Indies; Spain captures the last Muslim stronghold in Europe.
1497	John Cabot discovers Newfoundland.
1498	Vasco da Gama reaches Calicut by sea.
1499	Amerigo Vespucci charts part of the South American coast.
1500	Pedro Cabral discovers Brazil.
1517	Martin Luther begins Reformation; Turks conquer Egypt.
1520	Suleiman the Magnificent becomes sultan of Turkey; Turkish power at its height.
1521	Cortes conquers Mexico; Turks capture Belgrade.
1523	Swedes expel Danish overlords and elect their own king.
1526	Battle of Panipat; Babar founds Mogul Empire.
1532	Francisco Pizarro conquers Peru.
1533	Ivan IV (the Terrible) becomes Czar of Russia.
1534	Act of Supremacy; Henry VIII assumes control over English Church.
1542	First Portuguese sailors reach Japan.
1545	Opening of the Council of Trent.
1556	Akbar becomes Mogul Emperor.
1557	Macao becomes permanent Portuguese port in China.
1558	Elizabeth I becomes Queen of England.
1577	Drake begins voyage round the world returning by 1580.
1579	Union of Utrecht; Formation of the modern Dutch state.
1582	Pope Gregory XIII introduces (New style) Gregorian Calendar.
1585	Hideyoshi, dictator of Japan, unifies the country.
1588	English defeat the Spanish Armada.
1598	Edict of Nantes; French Protestants given liberty of worship; End of French Wars of Religion.
1600	English East India Company formed.
1602	Dutch East India Company founded.
1603	Union of English and Scottish Crowns; James VI of Scotland becomes James I of Britain.
1605	Gunpowder Plot.
1611	Publication of the Authorised Version of the English Bible.
1613	Michael Romanov becomes Czar of Russia and establishes the Romanov dynasty.
1620	Pilgrim Fathers settle in New England.
1624	Richelieu becomes Chief Minister in France.
1628	Petition of Rights in England.
1636	Japanese forbidden to go abroad.
1641	Japanese exclude all foreigners from Japan, except small Dutch trading ships.
1642	Outbreak of English Civil War between Royalists and Cavaliers
1644	Ch'ing dynasty (Manchu) in China
1649	Charles I of England executed Cromwell becomes Protector of England.
1652	Dutch establish Cape Colony.
1660	Restoration of monarchy in Britain; Charles II founds the Royal Society.
1661	Mazarin who succeeded Richelieu as the Chief Minister of France dies; Louis XIV takes over the government in person.
1665	Great Plague of London
1666	Great Fire of London.
1688	Glorious Revolution in England James II abdicates the British throne.
1689	Bill of Rights in England.
1694	Founding of the Bank of England
1696	Peter the Great becomes Czar of Russia.
1701	War of Spanish Succession begins Duke of Marlborough leads the English army on the continent.
1704	Marlborough wins the Battle o Blenheim.
1721	Robert Walpole becomes the firs Prime Minister of England.
1739	Nadir Shah of Persia sacks Delhi War of Jenkins' Ear begin between Spain and Britain.
1740	Frederick the Great becomes King of Prussia; Maria Theresa succeeds to Austrian throne Beginning of the War of Austrian Succession.

1751 Clive takes and holds Arcot in India and checks French advance; Chinese conquest of Tibet
1756 Seven Years War begins.
1757 Clive conquers Bengal.
1760 Battle of Wandiwash; The English defeat the French in India.
1762 Catherine II becomes Czarina in Russia.
1770 James Cook discovers New South Wales.
1773 "Boston Tea Party."
1776 American Declaration of Independence.
1787 The drafting of the American Constitution.

France (1787-1815)

1789 French Revolution begins; Storming of the Bastille (July 14); Washington becomes the first President of USA.
1792 France becomes a Republic.
1793 Louis XVI beheaded.
1794 Fall of Robespierre in France.
1795 Napoleon Bonaparte disperses Paris mob. (Oct. 5).
1796 First Italian campaign of Bonaparte.
1798 Battle of the Nile.
1804 Bonaparte becomes Emperor.
1805 Battle of Trafalgar and Nelson's death; Battle of Austerlitz. (Dec. 2)
1807 Napoleon controls all Europe; Slave trade abolished in British Empire.
1808 Peninsular War begins.
1812 Napoleon's retreat from Moscow.

British Empire (1815-1914)

1815 Battle of Waterloo; Napoleon sent to St. Helena.
1823 President of USA announces "Monroe Doctrine."
1831 First Reform Bill in England.
1833 First British Factory Act.
1837 Queen Victoria succeeds to the English throne.
1840 Introduction of the penny postage in England.
1846 Repeal of the Corn Laws and the resignation of Peel.
1848 Louis Philippe of France abdicates; Second French Republic proclaimed; Marx and Engels publish the Communist Manifesto; Gold discovered in California.
1849 Britain annexes the Punjab.
1851 Submarine telegraph cable between Dover and Calais; Discovery of gold in Australia.
1852 Napoleon III becomes Emperor of France.
1853 Commander Perry lands in Japan.
1854 Crimean War.
1856 Livingstone completes journey across Africa.
1857 First War of Indian Independence.
1858 British Crown assumes Government of India.
1861 Abraham Lincoln becomes President of United States; American Civil War.
1862 Bismark becomes the Chief Minister in Prussia.
1865 Assassination of Lincoln; abolition of slavery in USA.
1867 Dominion of Canada established; Russia sells Alaska to America; Second Parliamentary Reform Bill in England.
1868 Shogunate abolished in Japan; Meiji period of rapid westernisation under Imperial leadership begins.
1869 Opening of the Suez Canal.
1870 Promulgation of the doctrine of Papal Infallibility.
1871 Franco-Prussian War; Defeat of France by Prussia; Trade Unions in Britain legalised.
1874 Disraeli succeeds Gladstone as Prime Minister.
1875 England purchases Suez Canal shares.
1878 Second War with Afghanistan ended.
1884 Third Parliamentary Reform Bill in England.
1886 Britain annexes Upper Burma; Completion of Canadian Pacific Railway; Discovery of gold in Transvaal.
1894 Japan declares war against China.
1895 Japan occupies Formosa and Korea in China; Roentgen discovers X-rays; Freud publishes his first work on psycho-analysis.
1899 Boer War begins.
1900 Australian Commonwealth proclaimed.
1902 End ot the Boer War.
1904 Russo-Japanese War begins.
1905 Russo-Japanese War ends by the Treaty of Portsmouth; Norway separates from Sweden.
1906 First Parliament in Russia.
1907 New Zealand becomes a Dominion.
1909 Union of South Africa formed.

1911 Chinese Revolution; Amundsen reaches South Pole (Dec. 14).

1912 China becomes a Republic under Sun yat Sen; The Titanic disaster.

World Wars 1914–1945

1914 Archduke Francis Ferdinand of Austria assassinated at Sarajevo (June 28). Serbia suspected of complicity. Austria declares war on Serbia (July 28). The beginning of the 1st World War. Germany declares war on Russia (Aug. 1), on France (Aug. 3) and invades Belgium (Aug. 3). England declares war on Germany (Aug. 4). Austria declares war on Russia (Aug. 6). Japan declares war on Germany (Aug.23).

„ Battle of the Marne between France and Germany (Sep. 6–10). German advance halted.

„ Russia declares war on Turkey (Nov. 2); England and France follow suit (Nov. 5).

1915 Germans start air attacks and submarine blockade against Britain —Germans sink American ship, Lusitania (May 7).

1916 Battle of Verdun (Feb. 21-July 11). France stops German advance. Battle of Tannenburg (Aug. 25). Russian armies humbled by Germany. Battle of Jutland (May 31). Britain breaks German naval strength. Battle of Somme (July 1—Nov. 18). France keeps her lines against Germany. Lloyd George, Premier, forms war cabinet in Britain. Germans advance on the Eastern front. Vilna falls (Sept. 18).

„ Rasputin, the rascal Russian monk, assassinated by Prince Felix Yurupoo (Dec. 30).

1917 Russian troops mutiny in Petrograd (March 10). Provisional government formed in Russia—Tsar Nicholas II. abdicates (March 15). USA declares war on Germany (April 6). Bolshevik Revolution begins in Russia (Nov. 6). Armistice concluded between the Revolutionary Government in Russia and Germany (Dec. 5).

1918 Treaty of Brest-Litvosk between Germany and Bolshevik Russia (March 3),

„ British capture Jerusalem (Dec. 8). Tsar, Tsarina and children executed at Ekateringburg.

„ Revolution breaks out in Germany. Emperor William II abdicates. German Republic proclaimed (Nov. 9).

1919 Peace conference opens at Paris (Jan. 18). Benito Mussolini founds Italian Fascist Party. Jallianwalla massacre in India (April 13). Treaty of Versailles signed (June 28).

1920 First meeting of the League of Nations.

1921 Formation of the Irish Free State

1922 Mussolini marches on Rome and the Fascist Party takes over the Government of Italy.

1923 Turkish Republic proclaimed under Kemal Pasha.

1924 The first Labour Ministry in Britain under MacDonald; Greece becomes a Republic, Lenin dies (Jan. 21).

1927 Col. Lindberg flies across Atlantic.

1928 Capt. Kingsford Smith flies across Pacific.

1929 Wall Street Crash The beginning of the great Depression. King Amanullah of Afghanistan abdicates.

1933 Hitler appointed Chancellor by Hindenburg. German Reichstag set on fire (Feb. 27).

1934 Austrain Chancellor, Dollfuss murdered (Jul. 25); Hindenburg dies and Hitler becomes dictator.

1935 Italy opens war against Ethiopia.

1936 Italians occupy Addis Ababa; Civil War breaks out in Spain; King Edward VIII of England abdicates; Duke of York succeeds King Edward as King George VI.

1938 Munich Agreement between Chamberlain (England), Daladier (France), Hitler (Germany) and Mussolini (Italy).

1939 General Franco estaclishes dictatorship in Spain (Feb).; Germans invade Poland; Germans and Russians partition Poland; Second World War opens (Sept.).

1940 Germany invades Denmark, Norway, Holland, Belgium and Luxembourg; British evacuation from Dunkirk; Germans occupy Paris; Russians occupy Lithuania, Latvia and Estonia; France surrenders to Germany (June).

1941 Germany attacks Russia (June); Japanese attack on Pearl Harbour (Nov. 7); Japanese occupy Malaya, Philippines and Sarawak.

1942 Japanese navy defeated by U S fleets off a Midway Island (June); Battle of El Alamein (October 23) in which the Allies rout German forces; The Germans retreat.

1943 Axis Powers—Germany, Italy and Japan in retreat all over the war zones; Mussolini resigns; Italian Fascist Party is dissolved; Churchill, Roosevelt and Stalin, leaders of the victorious Allies meet at Teheran.

1944 Allies enter Rome; Allies liberate France, Belgium, Holland and Bulgaria.

1945 Americans invade Okinawa; Japanese Cabinet resigns; Atomic bomb dropped on Hiroshima (Aug 6); The second atom bomb falls on Nagasaki (Aug. 9); Japan surrenders to U S; German armies surrender (May 8); President Roosevelt dies (April 12); Mussolini and his mistress are shot by Italian partisans (April 28); Hitler and his mistress Eva Brown commit suicide (April 30); The end of Second World War; The U N Charter signed at San Francisco (June 26); Labour Party wins British General Elections (July 26); Trial of major war criminals open at Nuremberg (Nov 20).

New States (1945–1970)

1946 Trygve Lie elected the first Secretary General of UNO.; Formal winding up of the League of Nations; Nuremberg sentences on Nazis executed; Goering commits suicide; the first General Assembly of UN opens in New York (Oct. 23).

1947 Indonesia becomes free; India and Pakistan assume Dominion Status (Aug. 15): The partition of Palestine between the Jews and Arabs approved by the UN Committee on Palestine; King Michael of Rumania abdicates; Rumania becomes a Republic.

1948 Burma becomes a Republic; Gandhiji assassinated (Jan. 30). Ceylon becomes independent; OEEC (new OECD) established; C. Rajagopalachari succeeds Mountbatten as the Governor General of India; Jews proclaim the new State of Israel in Palestine.

1949 General Mao-Tse-Tung proclaims the People's Republic of China; Chinese Nationalist Government leaves the mainland and sets up headquarters in Formosa; United States of Indonesia comes into being.

1950 Dr. Rajendra Prasad elected the first President of India; The proclamation of the Republic of India (Jan. 26); The Korean War opens; King Gustav V of Sweden dies; George Bernard Shaw dies aged 94 (Nov. 2).

1951 King Abdulla of Jordan is assassinated; Libya becomes independent.

1952 King George VI of Great Britain dies and is succeeded by his daughter Elizabeth II; Olympic Games open at Helsinki (July 1).

1953 Stalin dies aged 74 (March 6); Dag Hammarskjold elected Secretary General of the UN; Hillary and Tensing conquer Everest (March 29); Korean armistice signed.

1954 Formation of the Federation to Rhodesia and Nyasaland; French settlements in India pass under Indian control.

1955 Marshal Bulganin succeeds Malenkov as Chairman of the Soviet Council of Ministers; Churchill resigns Prime Ministership and is succeeded by Anthony Eden; Afro-Asian Conference at Bandung; Dr. Albert Einstein dies (April 18); Western European Union (WEU) comes into being.

1956 Sudan becomes an independent Republic; Pakistan proclaims itself an Islamic Republic; France leaves Indo-China; Col. Nasser becomes President of Egypt; Nationalisation of Suez Canal by President Nasser; Revolt in Hungary against Communist regime; Russia sends troops to Hungary to quell the revolt.

1957 Saar added to the German Federal Republic; Polish Communist Party under Gomulka comes into power in Poland: Ghana becomes independent; ECM and EURATOM come into being; Tunisia becomes a republic; First earth satellite launched by Russia.

1958 Inauguration of West Indian Federation; The first American Earth satellite Explorer I launched; King Faizal of Iraq assassinated; Iraq becomes a republic; French

Guinea becomes an independent republic.

1959 Batista Government in Cuba overthrown by Fidel Castro; Alaska becomes the 49th State of USA; Inauguration of the Fifth French Republic under De Gaulle; Chinese occupy Tibet; Dalai Lama flees to India; Iraq withdraws from Baghdad Pact; Baghdad Pact renamed Central Treaty Organisation (CENTO); Bandaranaike, Prime Minister of Ceylon assassinated; Archbishop Makarios elected first President of Cyprus.

1960 Republic of Cameroon (formerly French Cameroons) becomes an independent State; Republic of Togo (formerly Togoland) comes into existence; Madagascar becomes an independent State; Belgian Congo becomes a republic; Ghana proclaimed a republic; Somali Republic comes into existence, merging the British Somaliland; and Italian Somaliland; Congo (Brazzaville), Chad and Central African republics become Independent; Cyprus becomes an independent republic; Olympic Games open in Rome (Aug.); Nigeria becomes an independent republic in the Commonwealth.

1961 Rwanda and Urundi in Africa become republics; The 10th Commonwealth Prime Ministers Conference opens in London; Sierra Leone becomes independent; South Africa becomes a republic and withdraws from the commonwealth; N. Cameroons become part of Nigeria; Conference of nonaligned nations at Belgrade; Syria secedes from the United Arab Republic; S. Cameroons gain independence; Tanganyika becomes independent sovereign State within the Commonwealth; India annexes the Portuguese enclaves Goa, Diu and Daman.

1962 Organisation of American States decides to expel Cuba; General Ne Win seizes power in Burma; China begins attack on India's northern frontier (Sept. 19); Chinese attack Indian outpost at Dhola (Oct. 16); Chinese open massive campaign NEFA and Ladakh; China captures Tawang; Krushchev agrees to dismantle Russian missile bases in Cuba; China captures Walong (Nov. 18,); China occupies Bomdilla (Nov. 19); China declares unilateral ceasefire (Nov. 21); U. Thant elected Secretary General of United Nations (Nov. 30).

1963 China and Pakistan sign frontier treaty; Egypt, Syria and Iraq form Arab Federation; Malaya, Singapore and South Borneo form Malaysian Federation; The assassination of President John F. Kennedy in Dallas (Texas—Nov. 22); Zanzibar becomes independent.

1964 Agreement signed between Tanganyika and Zanzibar forming a new State, Tanzania; Jawaharlal Nehru, Prime Minister of India dies (May 27); Lal Bahadur Shastri becomes the Prime Minister of India; Malta becomes independent; Russian Premeir Krushchev ousted; Alexei Kosygin becomes Premier and Leonid Brezhnev becomes Secretary of the Communist Party; Olympiad at Tokyo (Oct)

1965 Field Marshal Ayub Khan is elected President of Pakistan; Indonesia withdraws from UN (Jan. 5); Sir Winston Churchill is dead (Jan. 24). Dr. Albert Schweitzer is dead (Aug. 15); Rhodesia seizes independence; Mobutu takes over in a bloodless coup in the Congo; Soviet President Anastas Mikoyan steps down; Nikolai Podgorny becomes the new Soviet President.

1966 Army takes over the Government of Ghana deposes President Nkrumah; Sukarno hands over power to Army Chief Suharto (Mar. 12); Guyana (Guiana) becomes independent; South Africa's Prime Minister Dr. Verwoerd assassinated.

1967 India signs International Space Treaty in Moscow; Gen. Suharto becomes President of Indonesia; Konrad Adenauer, former West German Chancellor dies; Nasser blocks Gulf of Aquaba, Israel's vital sea outlet; UAR Forces fire on Israeli patrol near Gaza; The province of Eastern Nigeria secedes from the Federation and forms the independent republic of Biafra; Jordanian troops fire at Israeli units in Jerusalem; Israel strikes a pre-dawn blow on UAR, Syria and Jordan, crippling all efforts at defence; Israel captures

Gaza, Sinai area and also Jerusalem and claims complete victory over Arabs; Fighting ends in 'Suez Canal area with acceptance of cease-fire; Russia celebrates the 50th anniversary of the Bolshevik Revolution; Britain devalues the pound sterling; Ceylon devalues the rupee.

1968 South Pacific Island of Nauru, becomes an independent republic. Three-men arbitration commission awarded about 300 sq. m. of the Rann of Cutch to Pakistan, the remaining 3,200 sq. m. came to India; Mauritius becomes an independent State; Martin Luther King assassinated (Mar. 5); The Soviet Union and Warsaw Pact Countries' forces invade Czechoslavakia; Swaziland becomes independent; The 19th Olympic Games open in Mexico (Oct. 9); Equatorial Guinea becomes independent.

1969 Mrs. Golda Meir is sworn in as the Prime Minister of Israel; President Ayub Khan steps down and hands over power to the Army Commander Gen. Agha Mohammed Yahya Khan; Dwight D. Eisenhower (78), former US President and Supreme Commander in World War II dies (Mar. 28); American astronauts Neil Armstrong and Edwin Aldrin set foot on the Moon (Jul. 21); The French franc is devalued by nearly 12.5 per cent; Al Aqsa in Jerusalem, the third holiest shrine of Islam is partially destroyed by fire; President Dr. Ho Chi Minh (79), the Father of North Vietnam passes away (Sept. 4); Willy Brandit, the Social Democrat candidate is elected Chancellor of West Germany; The West German Government decides to revalue the Deutschemark upward to 3.66 marks to a dollar.

1970 The 30-month fighting for a separate Biafra from Nigeria Collapses after the surrender of secessionist leaders; Bertrand Russel (97), great philosopher passes away (Feb. 3); Haryana decides to end prohibition in the entire State except Mohindergarh from April 1, 1970; Meghalaya a newly-formed autonomous Hill State, within the State of Assam is inaugurated by Mrs Gandhi (Apr. 2); Former Portuguese dictator Antonio Salazar (81), passes away (July 27); Lok Sabha passes 24th Constitution Amendment Bill to abolish the privy purses and privileges of former rulers; President Gamal Abdel Nasser (52) dies of heart attack (Sept. 29); Charles de Gaulle (79), former President of France dies (Nov. 10); More than a million people killed when a tidal wave smashes into offshore islands of East Pakistan; Defence Minister Hafez Assad seizes power in Syria (Nov. 14); Lunokhad I, automatic vehicle, successfully landed on Moon by the Russians (Nov. 17); Dr. C. V. Raman (82), Nobel Prize winner and the doyen of Indian Science, dies of a heart attack (Nov. 21); Awami League headed by Sheikh Mujibur Rahman gets absolute majority in Pakistan's first general election.

II IMPORTANT PEOPLE

Abdul Abbas (c. AD 749) Founder of the Abbasid dynasty in Persia. He overthrew the Omayyad Caliphs.

Abdul Fazl (1551–1602) Indo-Persian writer, *Aini Akbari, Akbar nama.*

Abu Bakr (c. 573–634) First Caliph (successor) after Mahammad.

Adenaur, Dr. Konrad (1876–1967) Leader of the Christian Democratic Party in W. Germany. Chancellor 1949—53.

Aeschylus (525-456 BC) Athenian dramatist, *Prometheus Bound, Promethus the Firegiver, Promethus Unbound, Oresteia etc.*

Aesop (c. 620-560 BC) Greek fabulist, *Aesop's Fables.*

Aga Khan, Sir Muhammed Shah. H. H (1887–1957) Head of the Khoja Muslims, millionaire and international figure.

Akbar, the Great (1542–1605) The greatest of the Moghal Emperors in India.

Akhnaton (Amenophis IV) Pharaoh of Egypt (c. 1354 BC). Reformed Egyptian religion to centre round one God, Aton the Sun.

Al Beruni (973-1045) Afghan scholar and historian, translated many Sanskrit books into Arabic. *Kitb-ul-Hind.*

Alaric (c. AD 376–410) The leader of the Visigoths, who plundered South Europe and captured Rome.

Alcott, Louisa May (1832–88) American novelist. *Little Women* (1868).

Alexander, the Great (356-323 BC) King of Macedon, son of Philip. Destroyed the Persian Empire. One of the greatest commanders the world has ever seen.

Alexander II. (1818-1881) Russian Tsar, who emanicapated 23 millions of serfs (1861). Assassinated by Nihilists.

Ali (c. 600-661) Fourth Caliph.

Amaruka (AD 7th cent.) Sanskrit poet, *Amaruka Sataka* (100 stanzas of Amaruka)

Ambedkar, Dr. Bhimrao Ramji (1893-1956) A scheduled caste leader, scholar, jurist, law minister of the Government of India (1947—51); One of the prime architects of the Indian Constitution.

Amenophis III (c. 1300 BC) Egyptian Pharaoh, builder of Luxor and its famous sculptures.

Amundsen, Captain Raold (1872-1928) Norwegian Explorer, the first to reach the South Pole (Dec. 14, 1911)

Anacrein (c. 450-475 BC) Famous Greek lyric poet

Andrea del Sarto (1487 1531) Known in his time as the faultless painter, he is one of the greatest Italian painters.

Anderson, Hans Christian (1805 75) Danish story teller. *Anderson's Tales.*

Annie Basant, Mrs. (1846-1933) Irish lady, one of the leaders of the Home Rule Movement in India. Founder of Theosophical Society in India.

Antony, Marcus or Mark Antony (c. 83-30 BC) Roman politician, friend of Julius Caesar, one of the triumvirate in Rome. He allied himself with Cleopatra, Queen of Egypt and challenged Octavian. He died defeated and disgraced.

Aquinas, St. Thomas (c. 1225-1274) Italian philosopher and theologian, *Summa Theologica, Summa Contra Gentiles.*

Ardashir I (c. AD 240) Founder of the Sassanid Empire in Persia.

Aristophanes (c 444 c- 385 BC) Athenian satirist and comic poet. *Lysistrata, Birds, Peace, Acharnians* etc.

Aristotle (384-322 BC) Greek Philosopher. *Rhetorics, Politics, Natural History, Poetics.*

Arnold, Mathew (1822 88) English poet and critic. *Scholar Gypsy, Forsaken Merman* (Poetry), *Essays in Criticism* (Prose).

Astor, John Jacob, (1763-1848) A native of Heidelberg, he emigrated to USA and built up a fortune. Founder of the House of Astor.

Astor, Nancy Witcher, Viscountess (1879-1964) American born British lady, the first woman member of parliament,

Asoka, the Great (273-232 BC). The greatest of the Mauryan Emperors

Asvagosha (AD 1st cent) Sanskrit poet. *Buddhacharita* (Story of Buddha).

Ataturk, Kemal (Mustafa Kemal Pasha) (1881-1938). The father of modern Turkey and President (1923-38).

Attila (406-453) Hun leader, who ravaged and despoiled Europe.

Attlee, Clement R, (1883-1967). Labour Party leader and Prime Minister of Britain (1945—1951). India gained freedom during his premiership.

Austien Baron (1866-1941) British automobile magnate, maker of the famous Austen cars, pioneer of small car manufacture

Austen, Jane (1775 1817) English novelist. *Emma, Pride and Prejudice, Mansfield Park* etc.

Augustus, (Octavius) (63 BC-AD 14) The first Roman Emperor, nephew of Julius Caesar, under whom Rome enjoyed the golden years of her history.

Aurangzeb (1618-1707) The last of the Great Mughals of India. The Mughal Empire disintegrated after his death.

Aurobindo Ghose, Sri (1872-1950) A gifted Bengali scholar, and a firebrand opposed to British rule in his younger days. Later, he became a sanyasin and established an 'ashram' in Pondicherry.

Ayub Khan, Field Marshal (1907-1974). Pakistan General, who took over the Pakistan government. President 1958-1969.

B

Baber or Babar (1483-1530) Turkish ruler of Kabul and founder of the Mughal Empire in India.

Bach, Johann Sebastian (1685-1750). German composer, one of the greatest in history, regarded as the Father of Western music.

Bacon, Francis (1561-1626) English essayist philosopher. *New Atlantis, Novum Organum.*

Baden Powell, Lord (1857-1941) English general and founder of the Boy Scouts and Girl Guides.

Balzac Honore de (1799-1850) French novelist, *Le Comedie Humaine.*

Bana (AD 7th cent.) Sanskrit prose writer. *Harshacharita*(Story of Harsha) *Kadambiri* a romantic story.

Barrie, Sir James Mathew (1860–1937) English playwright, *Little Minister* (Novel), *Peter Pan* (Play).

Beetheoven Ludvig Van (1770-1827). Germen composer, one of the world's greateat composers. He produced his masterpieces, after he became deaf at the age of thirty. His symphonies (9 in number) are among the greatest ever composed.

Bennet, Arnold (1867–1931) English novelist, *Old Wives Tales, Clayhangar.*

Bentham, Jeremy (1748–1832) English philosopher, champion of the Utilitarian theory.

Bentinck, Lord William Henry Cavendish (1774-1839)—Governor General of India (1827—35). Initiated many humanitarian reforms in India. He abolished *Sati* and suppressed the *Thugs*

Bering, Vitus Jonassen (1681-1741). Danish explorer and discoverer of Bering Strait and Alaska.

Bergson, Henri Louis (1859–1941) French philosopher and writer *Creative Evolution, Matter and Memory.*

Bhadrabahu (4th cent. BC) *Kalpasutra* (a manual on ceremonies).

Bharavi (AD 6th cent.) Sanskrit poet, *Kiratarjuna* (Arjuna and Kiratha))

Bhatti (AD 7th cent.) Sanskrit poet, *Bhattikavya* (Bhatti's poem) a story of Rama.

Bhartruhari (AD 7th cent.) Sanskrit poet, *Nitishatak* (100 stanzas on morals), *Shringarashatak* (100 stanzas on love), *Bhaktishatak* (100 stanzas on piety).

Bhasa (AD 5th cent.) A prolific Sanskrit writer, wrote 13 plays *Swapna Vasavadatta* (Vasavadatta's vision), *Pratinjna Yanghandarayana* (Vow of Yanghandaraya), *Charudatta.*

Bhavabhuti(AD 8th cent.) Sanskrit dramatist *Malathimadhava* (story of Malathi and Madhava), *Mahaviracharita*(story of the Great Hero) *Uttararamacharita* (Later deeds of Rama)

Bilhana, (AD 12th cent.) Sanskrit poet, *Vikramankadeua charita* (story of Vikramanka—Chalukyan emperor) *Chaurapankasikha* (Fifty stanzas of the thief).

Bismark, Prince, Otto Edward Leopold von(1815-1898) German Chancellor, man of blood and iron, who made Germany an imperial power.

Boccaccio, Giovanni (1313-75) Italian prose writer. *Decameron* (stories).

Bolivar, Simon (1783-1830) South American leader and liberator of many South American States from Spanish rule. Bolivia is named after him.

Booth, William (1829-1912) English religious leader and founder of the Salvation Army.

Boswell, James (1740-1795) English biographer. *Life of Dr. Johnson.*

Botticelli Sandro (c 1444-1510) Famous Italian painter. His Illustrations to *Divine Comedy* are world famous.

Brahms Johannes (1836–97) German composer. His symphonies rank among the greatest symphonies of the west.

Bronte, Charlotte (1816-55) English novelist, *Jane Eyre.*

Bronte Emily (1818 1848) English novelist. *Wuthering Heights.*

Browning, Robert (1812–89) English poet, *Fra Lippo Lippi, Grammarian's Funeral, The Ring and the Book.*

Buck, Pearl S. (1892-1972) American novelist, *Good Earth.* Awarded Nobel Prize for literature in 1938.

Bunyan, John (1628-88) English writer. *Pilgrim's Progress.*

Burroughs, Edgar Rice (1875–1950) American novelist. Creator of Tarzan, *Tarzan the Ape man* etc.

Burke, Edmund (1729–1797) British parliamentarian and celebrated orator. He led the impeachment of Warren Hastings.

Burton, Sir Richard Francis (1821-1890) British explorer who discovered Lake Tanganyika.

Butler, Sir Samuel (1835-1902) English writer, *Erewhon, Way of All Flesh.*

Byrd Richard E. (1888-1957) American admiral and leader of the scientific expedition to Antarctica.

Byron, Lord (George Gordon) (1788–1824) English poet *Don Juan, Childe Harold.*

Caesar, Cauis Julius (c. 101–44 BC) Roman general and statesman. One of the world's greatest generals. Was assassinated by his political rivals, Brutus and others.

Carlyle, Thomas (1795-1881) English writer and historian. *Heroes and Hero Worship, French Revolution, Sartor Resartus.*

Carnegie, Andrew (1835–1919) Scottish-born American, iron and steel magnate and philanthropist.

Caroll, Lewis (Dodgson,Charles Lutwidge) (1832-98) English story teller. *Alice in Wonderland, Through the Looking Glass.*

Casabianca Louis de. (C. 1754-1798) French sailor, captain of the French Ship L' Orient at the Battle of the Nile. His ten year old son Casabianca, has been immortalised in the famous poem. Father and son died together in the burning ship.

Casanova, de Seingalt Giacomo (1725-98) Italian adventurer. *Memoirs.*

Catherine the Great (1729 96) German-born Princess, Empress (Tsarina) of Russia. One of the greatest rulers of Europe.

Cellini, Benvenuto (1500-1557) Famous Italian sculptor and goldsmith. His bronze statue *Perseus with the Head of Medusa* is among the best bronzes of Europe.

Cervantes, Saavedra, Miguel de (1547 1616) Spanish novelist. *Don Quixote.*

Cezanne, Paul (1839-1906) French painter, with original ideas, he set modern painting on a new course.

Chandragupta, Maurya (4th cent. BC) Founder of the Mauryan Empire in India (321 BC).

Chandragupta I, (4th cent. AD) Founder of the Gupta dynasty in India (AD 319).

Charlemagne (Charles the Great) (742-814) Emperor of the Franks, founder of the Holy Roman Empire (AD 800).

Chateaubriand, Francois Rene, Vicomte de (1768-1848) French essayist and writer. *Atala, Memoirsd' Outre Tombe.*

Chaucer, Geoffrey (c. 1343-1400) English poet, father of English poetry. *Canterbury Tales.*

Chekhov, Anton. (1860-1904) Russian playwright. *The Cherry Orchard, The Bet, The Three Sisters, The Sea Gull.*

Cheops (Khufu) (c. 2590 BC) Egyptian Pharaoh (2nd) who built the Great Pyramid at Gizeh.

Churchill, Sir Winston, (Leonard Spencer) (1874-1965) British Prime Minister and famous writer. He led Britain to victory in the Second World War.

Chesterton, Gilbert Keith. (1874-1936) English essayist and writer. *The Flying Inn, The Napoleon of Nottinghill.*

Cicero, Marcus Tullius (106-43 BC) Roman orator and statesman. *Orations, Letters.*

Clemenceau, Georges Eugene (1841-1929) Known as 'Tiger Clemenceau', he was Premier of France during the First World War.

Clive, Robert Lord (1725-74) British soldier who laid the foundation of British Empire in India.

Cleopatra (69-30 BC.) Queen of Egypt, daughter of Ptolemy XI, celebrated lover and intriguer, mistress of Julius Caesar and Mark Antony—one of the most romantic figures in history.

Coleridge, Samuel Taylor (1772-1834) English poet. *Ancient Mariner, Kubla Khan.*

Columbus, Christopher (c. 1446-1506) A Genoese navigator, who with the aid of the Spanish King, discovered the New World.

Comte, Auguste (1798-1857) French philosopher, founder of positivism.

Conrad, Joseph (1857-1924) Polish born, English novelist. *Lord Jim, Romance, Almayer's Folly.*

Constable John (1776-1837) The best known of English Landscape painter.

Constantine the Great (c. 272-337) Byzantian (Eastern Roman) emperor, who founded the city of Constantinople. He summoned the first Christian oecumenical synod at Nicea (AD 325).

Corelli, Marie (Mary Mackay) (1855-1924) English woman novelist. *The Sorrows of Satan, Barabbas, A Romance of Two Worlds.*

Corneille, Pierre (1606-1684) French dramatist *Horace, Le Cid.*

Cook, James (Captain) (1728-79) English sailor and explorer, discoverer of New Caledonia and Cook Islands.

Cortez, Hernando (1488—1547) Spanish conquistador in Mexico. He destroyed and plundered the Aztec Empire.

Coward, Noel (1899-1973) A successful English playwright and actor *Hay Fever, Private Lives, Blithe Spirit, (Plays) etc.* His greatest performance as an actor was in the film *Our Man in Hanava.*

Croesus (d. c. 546 B. C.) King of Lydia, whose name has become a synonym for wealth.

Cromwell, Oliver (1599—1658) English leader who led the revolt against Charles I and had him beheaded. He was Lord Protector of Britain(1953-58)

Cyrus the Great (d. 529 B C.) Founder of the great Persian Empire (550 BC)

Dandin (7th cent. AD) Sanskrit prose writer. *Dasakumara charita* (Tales of the Ten Princes).

Dante (Alighieri), (1265-1321) Italian poet. *Divine Comedy, Vision.*

Danton, Georges Jacques (1759-94). One of the leaders of the French Revolution, along with Robespierre and Marat. He was guillotined by the Revolutionary Tribunal.

Darius the Great. (521-485 BC) Emperor of Persia, under whom the Persian empire reached its zenith.

Das, Chitha Ranjan (Desabandhu) (1870-1925) A celebrated Bengali lawyer and freedom fighter—one of the founders of the Swarajya movement.

David (c. 11th cent BC) The first great king of the Jews.

Debussy, Claude Achille (1862-1918) French composer, founder of the Impressionist School in music.

de Gaulle, Charles (1890-1970.) French General who formed a government in exile. after the Nazi occupation of France. Founder and President of the Fifth (French) Republic (1959-69).

Defoe, Daniel (1660-1731) English novelist. *Robinson Crusoe, Moll Flanders.*

Descartes, Rene (1569-1650) French philosopher and mathematician. *Treatise on Man.*

Dewy, John (1859-1952) American philosopher, psychologist and educationalist.

Diaghiler, Sergei Pavlovich (1862-1927) Founder of the Russian ballet.

Dias, Novais Bartholomew (d. 1500) Portuguese navigator who first sailed round the Cape of Good Hope (1488).

Dickens, Charles (John Huffam) (1812-70) English novelist. *David Copperfield, Tale of Two Cities, Oliver Twist, Pickwick Papers,* etc.

Diderot, Denis (1713-84) French writer and encyclopaedist, *Encyclopedie* (1751), *Princes De Cleves.*

Diogenes. (412-323 BC) Greek philosopher, founder of Cynic philosophy.

Disraeli, Benjamin (1804-1881) British statesman and writer. Twice Prime Minister of Britain.

Dostoyevsky, Feodor Mikhailovitch 1821-81) Russian novelist. *The Idiot, Crime and Punishment, Brothers Karamazov.*

Doyle, Sir Arthur Conan (1859-1930) English detective writer, creator of Sherlock Holmes. *Adventures of Sherlock Holmes, The Hound of the Baskervilles,* etc.

Drake, Sir Francis (1540 96) English admiral, who circumnavigated the earth (1577-80)

Dumas, Alexandre (1802-70) French novelist. *Three Musketeers, Count of Monte Cristo.*

E

Eichmann, Adolf (1906-62) Nazi official and persecutor of Jews, who was tried and condemned to death by Israel

Eiffel, Alexandre Gustav (1832-1923) Famous French architect, designer of the Eiffel Tower in Paris.

Eisen hower, Dwight David (1850 1969) Supreme Commander of Allied armies, World War II. President of USA (1952-60).

Eliot, George (Marian Evans) (1819-80) English novelist. *Adm Bede, Mil'ion the Floss, Silas Marner, Romola.*

Eliot, T. S. (1888-1965) American born English poet. *Wasteland, Hollow Men* (poem), *Confidential Clerk, Cocktail Party* (drama).

Elizabeth I (1533-1603) Queen of England, who made Britain a world power.

Emerson, Ralph Waldo (1803 1882) American essayist and philosopher. *The Natural History of the Intellect, The Conduct of Life.*

Engels, Friedrich (1820 95) German philosopher and co author with Marx. *The Communist Manifesto.*

Epicurus† (342-270 BC) Great philosopher, founder of the Epicurean School. *Letters to Heredotus, Menoceus and Others.*

Euripides (480-406 BC) Greek dramatist. *Alcestis, Bacchae.*

Epstein, Sir Jacob (1880-1950) American-born sculptor who settled in England. Considered the greatest of 20th century sculptors.

Eyck, Hubert Van (c-1366-1426) and Eyck Jan Van (c-1386-1440) celebrated Flemish artists.

F

Fa-Hsien. (d. AD 414) Chinese traveller who wrote an account of his travels in India.

Faulkner, William (1897-1962) American novelist. *The Sound and the Fury.*

---

† Epicurian, today means one who has fine tastes in eating and drinking. This is unfortunate, for Epicurus was a confirmed ascetic, who advocated intellectual pleasures and not the appeasement of physical appetites.

Ferdinand V (1452-1516) King of Aragoan, married Isabella, queen of Castile. This marriage united Spain unto a single monarchy. Ferdinand drove out the Moors from Spain, equipped Columbus for his epic voyage of discovery, conquered Granada and started the Inquisition. Spain became a European power under him.

Fielding, Henry (1707-54) English novelist. *Tom Jones, Joseph Andrews, Jonathan Wild.*

Firdousi (Abdul Kasim Mansur) (930-1020) Persian poet, *Shah Nama* (1011)

Fitz Gerald, Edward (1809-83) English poet and translator. *Rubaiyat of Omar Khayyam.*

Flaubert, Gustave (1821-80) French novelist *Madame Bovary.*

Foch, Marshal Ferdinand (1851-1929) French commander of the Allied armies in World War I.

Ford, Henry (1863-1947) American millionaire and pioneer of large-scale automobile production.

Franklin, Benjamin (1706-90) American politician, scientist and author.

Frederick the Great (1712-86) King of Prussia, who built up Prussia as a grand monarchy.

France, Anatole (Jacques Thibault) (1844-1924) French writer. *Revolt of the Angels, Literary Life.*

Frazer, Sir James George (1854-1941) British anthropologist. *The Golden Bough.*

Froebel, Friedrich Wilhem August (1792-1852) German educationist. Founder of the Kindergarten system of schooling.

Freud, Sigmund (1856-1939) Austrian psychologist. *Interpretation of Dreams.*

Froude. James Anthony (1818-1894) English writer and historian. *History of England* (From Wolsey to Armada), *Short Studies on Great Subjects.*

Gagarin Yuri (1934-1968) First Russian cosmonaut to orbit the Earth in Vostok I (12-4-1961). Killed in an air accident.

Galsworthy, John (1867-1933) English novelist. *Forsyte Saga.*

Gama, Vasco da (c 1460-1524) Portuguese navigator, the first sailor to find a sea-route to India, via Cape of Good Hope

Gandhi, Mohandas Karamchand (Mahatma Gandhi) (1869-1948) Father of Modern India, assassinated by a religious fanatic (Jan. 30, 1948.)

Ghalib (1796-1869) Indian poet in Urdu. *Dewan-e-Ghalib.*

Gibbon, Edward (1737-94) English historian. *Decline and Fall of the Roman Empire.*

Gladstone, William (1809-98) British Liberal leader and orator. Prime Minister of Britain, four times.

Goebbels, Paul. J. (1897-1945) Nazi minister of propaganda.

Goering, Herman. W. (1893-1946) Hitler's Minister of State and commander of the German Luftwaffe (Air Force). He was tried and convicted at Nuremburg, but committed suicide by swallowing poison.

Goethe, John Wolfgang von (1749-1832) German poet and novelist. *Faust, Wilhelm Meister, Werther.*

Gogol, Nikolai Vasilievich (1809-52) Russian story-teller. *Dead Souls, Taras Bulba, Inspector General* (play).

Goldsmith, Oliver (1728-1774) English poet, essayist and novelist. *Deserted Village* (Poetry), *Traveller* (Poetry), *Vicar of Wakefield*(Novel) *She Stoops to Conquer* (Drama).

Gokhale G. R. (d 1915) A Marathi liberal leader, one of the pioneers of Indian Independence and founder of the 'Servants of India Society.'

Gorky, Maxim (Alexy Maximovich Peshkov) (1868-1936) Russian novelist. *Mother, The Lower Depths.*

Goya (1746-1828) World famous Spanis. painter and etcher.

Gray, Thomas (1716-71) English poet *Elegy in a Country Churchyard.*

Grimm Brothers—Jacob Ludwig Kar (1785-1863)—**and Wilhelm Kari** (1786 1859) *Grimm's Fairy Tales.*

Guevara Che, Ernesto (1928-67) Argentine-born Cuban revolutionary, theorist of guerrilla warfare, killed in an encounter with the police in Bolivia.

Gunadhya (?) 1st cent AD. Sanskrit writer, *Brahat Katha* (the Great story), a collection of many stories.

H

Hala (Satavahana King) 1st cent. AD. Sanskrit poet. *Saptasataka* (Seven Hundred verses)

Hammurabi. (c. 1800 BC) Emperor of Babylonia who promulgated the first written code of laws in history.

Handel, George Frederick (1685–1759) German composer, who spent most of his life in England. He is ranked among the greatest composers of the world.

Hannibal (247-182 BC) Carthaginian general who hunted the Roman army, all over Italy but was at last defeated by Scipio Africanus, Roman Commander.

Hardy, Thomas (1840-1928) English novelist. *Tess of the D'urbervilles, Far from the Madding Crowd, Jude the Obscure, Mayor of Casterbridge, Trumpet Major* etc.

Harun-al-Rashid (c. 763-809) Caliph of Baghdad, celebrated alike in history and legend, under whom the Abbasid Empire reached its greatest glory.

Hastings, Warren (1732-1818) the first British Governor General of India who was impeached in England but was at last acquitted.

Hayden, Franz Joseph (1732-1809) Austrian composer of the classical period of Bach, Handel and Mozart.

Hedin, Sven Anders (1875–1952) Swedish traveller and explorer, the first to explore Tibet (the Forbidden Land) and trace the sources of Sutlej and the Brahmaputra

Hegel, Georg Wilhelm Friedrich (1770-1831) German philosopher. *Philosophy of History, History of Philosophy,*

elen Keller (1880-1968) American deaf and blind lady, whose work for the welfare of the deaf and the blind won her world acclaim.

emingway, Ernest (1899-1961) American novelist and short story writer. *The Torrents of Spring, A Farewell to Arms, For Whom the Bell Tolls.*

Henry, O. (William Sydney Porter) (1862-1910) American short story writer. *Cabbages and Kings, Four Million, Trimmed Lamp.*

Herodotus (c. 485-425 BC.) Greek historian. *History of the Persian Invasion of Greece.*

Hindenburg, Paul von (1847-1934) Famous German Field Marshal, the Victor of Tannenburg and President of Nazi Germany (1925—34)

Himmler, Heinrich (1900-45) The infamous Nazi Chief of the Gestapo, who committed suicide when the victorius Allies captured him.

Hitler, Adolf (1889–1945) Leader of the Nazi party, dictator of Germany, who started the Second World War. He lost the war and committed suicide. *Mein Kampf* (My Struggle).

Ho Chi-Minh (1892–1969) Famous communist revolutionary and liberator of Viet Nam from French rule. President of Viet Nam.

Homer (c. 700 BC.) Greek epic poet. *Iliad, Odyssey.*

Horace (65 –8 BC.) Latin poet. *Satiers, Epodes, Odes.*

Hugo, Victor Marie (1802—85) French novelist. *Les Miserables, Les Legende des Siecles, Notre Dame.*

Humboldt, Baron, Friedrich Heinrich Alexander, Von (1769-1859) German naturalist and explorer. His researches contained in *Voyage de Humboldt et Bonpland* (23 Vols.) and *Cosmos* (5 Vols.).

Hume, David (1711–1776) English philosopher, *Treatise on Human Nature, Political Discourses.*

Huxely, Aldous Leonard (1894-1963) English writer and essayist *The Brave New World, Point Counter Point, Jesting Pilate* etc.

I

Ibn Batuta (AD 14th cent.) Arab traveller, who visited India and wrote an account of his travels.

Ibn Saud (c. 1188-1253) First King of Saudi Arabia.

Ibsen, Henrik Johan (1828-1906) Norwegian dramatist. *Peer Gynt, Wild Duck, Doll's House, Hedda Gabler.*

Inonu, General Ismet (b. 1884) President of Turkey 1938-50. Leader of the Republican Party founded by Ataturk. Prime Minister under Ataturk 1923-1938.

Ivan the Great ((1440 1505) King of Russia who liberated Russia from Mongol suzerainty.

Ivan the Terrible (1530-1584) So-called because of his insane cruelties. He was the first King of Russia to assume the title 'Tsar (Caesar) of the Russians.'

J

James, William (1842-1910) American philosoper. *Principles of Psychology, The Meaning of Truth.*

Jayadeva (AD. 12th cent.) Sanskrit poet. *Gita Govinda* (Song of Govinda).

Jeans, Sir James Hopwood (1877-1946) English astronomer and writer. *The Mysterious Universe, The Stars in their Courses.*

Jefferson, Thomas (1743—1826) One of the leaders of American Independence, who drafted the Declaration of Independence. Twice President of USA.

Jenghis (Genghiz) Khan (c. 1162—1227) The great Mongol leader who built up a vast empire in Asia.

Jerome K. Jerome (1859-1927) English humorist, *Idle Thoughts of an Idle Fellow, Three Men in a Boat.*

Jinnah, Muhammad Ali (1876—1948) Founder and first Governor General of Pakistan.

Jimutavahana (AD. 12th cent) *Dayabhaga* a treatise relating to Hindu inheritance-part of a great compilation, *Dharma Sutra*:

Joan of Arc, St. (1412—31) Inspired French maid who led the French to victory in many battles with the British. She was captured by the British and burnt at the stake as a witch, but was canonised as a Saint later.

Johnson, Samuel (1709—84) English lexicographer, *Rasselas, Lives of the Poets. Dictionary of English.*

Joyce, James (1882-1941) Irish novelist, *Ulysses, Portrait of the Artist.*

Justinian I (Flavius Anicius Justianianus) (AD 483-565) Byzantian (Eastern Roman) Emperor who codified the law. He built the great St. Sophia cathedral at Constantinople (AD 532).

Juvenal (Decinius Junius Juvenalis) (60—140). Famous Latin poet. *Satires.*

Kalhana (12th cent. AD) Sanskrit writer. *Rajatharangani* (River of Kings—a story of the kings of Kashmir).

Kalidasa (5th cent. AD) The greatest Sanskrit poet. Plays: *Malavikagnimitra* (Malavika and Agnimitra—a comedy of harem intrigue), *Vikramorvasiyam,* (Urvasi won by valour), *Abhignana Sakunthalam* (Recognition of Sakunthala). *Epics*: *Raghuvamsa* (Dynasty of Raghu), *Kumara Sambhavom* (Birth of the War God).

Lyrics: Meghdoot (Cloud Messenger), *Ritu Samhara* (Garland of Seasons).

Kant, Immanuel (1724-1804) *The Critique of Pure Reason, The Critique of Judgement, The Critique of Practical Reason.*

Kautilya (Chanakya) (4th cent. BC) Sanskrit writer, *Artha Sastra* (Science of Statecraft).

Keats, John (1795-1821) English poet. *Endymion, Ode to a Nightingale,* etc.

King, Dr. Martin Luther, (1929—1968) American Negro leader and pacifist, assassinated on 4th April 1968.

Kipling, Rudyard (1865-1936) English poet and writer, *Jungle Book, Kim, Ballads of the Barracks* (poetry).

Krupp, Alfred (1812—1887) Famous German industrialist and armaments manufacturer—founder of the House of Krupp.

Kublai Khan (1216—94) Grandson of Jenghiz Khan and famous Mongol Emperor, founder of the Yuan dynasty in China.

Kumardasa (6th cent. AD) Sanskrit poet. *Janakiharana* (Abduction of Janaki

La Fayette, Comtesse de la (17th cent) The first French novelist. *Princess de Cleves* (1677).

La Fontaine, Jean de (1621-1665). French poet and fabulist. His fables have been translated into many languages.

Lala Lajpat Rai. (1865-1928) A prominent Punjabi leader of Independence, lawyer and writer.

Lamartine, Alphonse de (1790-1869) French poet. *Raphael, Graziella.*

Lawrence, D. H. (David Herbert) (1885 1930) English novelist. *Lady Chatterly's Lover, Sons and Lovers, The Rainbow.*

Lenin, Vladimir Ilyich Ulyanov (1870-1924) Leader of the Russian Revolution and founder of USSR.

Leonardo da Vinci (1452-1519) Italian genius, whose versatality remains unequalled in history. He was a painter, an architect, a philosopher, poet, composer, sculptor, mathematician, inventor anatomist and an exceptionally handsome athlete to boot. His writing on various subjects were contained in his note books, much of which is lost. His outturn as painter is small, but great-*Mona Lisa* and *The Last Supper.*

Lesseps, Vicomte Ferdinand de (1805-1894) French engineer and diplomat, who planned the Suez Canal

Leverhulme, Viscount (W. A. Lever) (1851-1925) British industrialist, founder of Lever Brothers Ltd.

Lewis, Sinclair (1885-1951) American novelist, *Dr. Arrowsmith, Babbit.*

Lincoln, Abraham (1809-1865) Sixteenth President of USA. He fought the Secessionists, abolished slavery, and maintained the territorial integrity of USA.

Livingstone, David (1813-73) Scottish missionary and African explorer. He discovered the Zambezi river, Victoria Falls etc.

Liszt, Franz (1811-1886) Hungarian pianist and composer. He originated the symphonic poem.

Locke, John (1632-1704) English political scientist. *Two Treatises on Government Thoughts on education.*

Longfellow, Henry Wadsworth (1807-82) American poet. *Hiawatha,Pslam of Life, Evangeline.*

Lloyd George, David (1863-1945) Liberal leader and war-time (1st World War) Prime Minister of Britain.

Lombroso, Cesare (1836-1909) Italian doctor and pioneer of criminology. His work on criminology *L'uomo delinquente* is monumental.

Louis XIV, King of France (1638-1715) Reputed as the Grand Monarch, one of the longest reigning monarchs of Europe (72 years) under whom France reached the pinnacle of her glory.

Lucretius (Titus Lucretius Carus) (99-55 BC) Roman (Latin) poet, *De rerum Natura.*

Lytton, Edward Bulwer, Lord (1803-73) English novelist. *Last Days of Pompeii, Eugene Aram, Pelham.*

M

Maccabee, Judas (c. 161 BC.) Jewish leader who resisted Roman rule in Palestine.

Macaulay, Thomas Babington, Lord (1800-59) English essayist, historian, poet. *History of England, Lays of Ancient Rome* (poetry).

Machiavelli, Nicolo (1469-1527) Italian political writer. *The Prince.*

Magellan, Ferdinand (c. 1480-1521) Portuguese navigator, who sailed round the Earth.

Magha (AD 7th cent.) Sanskrit poet. *Sisupal Vadhom* (Slaying of Sisupala).

Mahendra Vikraman (a Pallava King) Sanskrit poet. *Matta Vilasa* (Sport of Drunkard).

Malory, Sir Thomas (c. 1430-70) English writer of Arthurian Legends. *Le Morte d' Arthur.*

Manet, Edouard (1832-83) French impressionist painter. His famous paintings are *Olympia* and *Lola de Valence.*

Manu (legendary author) (2000 BC) Sanskrit law-giver. *Manu Smrithi* (The Code of Manu).

Mann, Thomas (1875-1955) German novelist. *Buddenbrooks, The Magic Mountain.*

Marat, Jean Paul (1743-93) One of the leaders of the French Revolution (along with Robespierre and Danton). He was murdered in his bath by a woman, Charlotte Corday.

Marconi Guglielmo Marchesa (1874-1973) Italian electrical engineer, celebrated for his development of wireless telegraphy.

Maria Theresa (1717-80) Empress of Austria-Hungary, one of the ablest women rulers of Europe.

Marie Antoinette (1755-93) Queen of France and wife of Louis XVI, guillotined by the French Revolutionaries.

Marcuss, Aurelius Antoninus (AD 121-180) Roman emperor and philosopher. *Meditations.*

Marlborough, (John Churchill) Duke of (1650-1722), One of the greatest soldiers of Britain, victor of Blenheim.

Marlowe, Christopher (1564-93) English poet and dramatist. *Tamburlaine, Faust.*

Marx, Henrich Karl (1818-83) German social reformer, father of Communism. *Das Capital.*

Mary, Queen of Scots (1542 87). This thrice - married beautiful Scottish queen, is one of the most tragic figures in English history. She lost her throne, and after being a prisoner of Queen Elizabeth for 19 years, was beheaded on a charge of conspiracy.

Mata Hari (Margarethe G. Zelli) (1870 1917) Famous German spy during World War I. She was arrested and executed by the French Army.

Maugham, (William) Somerset (1874-1965) English novelist. *Of Human Bondage, Summing Up* (autobiography)

Mauppasant, Henry Rene Albert Guy de (1850-93) French novelist and short story writer, the greatest of all European short story writers, *Des Vers, Boule de Siu.*

Mazarin, Jules Cardinal (1602 61) One of the ablest of French ministers of the Grand Monarchy.

Mazzini, Guiseppe (1805-72) Italin leader who initiated the movement for the unification of Italy,

Menelik II. (1844-1913)Ethiopian Emperor, founder of modern Ethiopia.

Metternick, Clemens, W. N. L. Furst von (1773-1859, Austrian foreign minister who played a great part in European politics after 1815.

Michelangelo (1475–1564) Italian painter and sculptor. He considered himself sculptor first and a painter second. His sculptural masterpieces are *Pieta David, Moses* and allegorical figures, *Day, Night, Dawn* and *Twilight.* His paintings on the ceiling of the Sistine Chapel-an area of some 6000 sq ft. are monumental. His finest painting however, is the *Last Judgement* behind the altar of the Sistine chapel.

Milton, John (1608-74) English epic poet. *Paradise Lost, Paradise Regained, Lycidas.*

Moliere, Jean Baptiste (Jean Baptiste Poqueline) (1622 73) French playwright, *L'Etourdi, Le Depit Amroureux.*

More, Sir Thomas (1478–1535) English humanist and writer, *Utopia.*

Montessori, Maria, Madame (1869-1952) Italian educationist, who founded a new method in education—'Montessori method'.

Morgan, John Pierpont (1837 1913) American banker, who built up the famous house of Morgans.

Mozart, Wolfgang Amadeus (1756-1791) German composer, acknowledged as the greatest musical genius of Europe. He was distinguished in all types of musical compositions, symphonies, operas etc.

Munshi, K. M. (1887-1971) Gujarati lawyer, writer and prominent Congress leader. Founder of the Bharatiya Vidya Bhavan.

Mussolini, Benito (Il Duce) (1883-1945) Fascist dictator of Italy (1922-45) and Hilter's ally in World War II. He was executed by a mob.

Mutsuhito (Meiji) (1852-1919) Japanese Emperor, who built up modern Japan.

Nadir Shah (1588-1747) Persian King who invaded India and carried off the fabulous Peacock Throne.

Naidu, Sarojini Mrs. (1879-1949) Gifted poetess and writer and able lieutenant of Gandhiji during Independence movement.

Napoleon, Bonaparte (Napoleon I) (1769-1821) Corsican born military leader, nick-named 'Little Corporal', Emperor of France(1804-15). Victor of many battles finally defeated at Waterloo and exiled to St. Helena.

Narayana (12th cent. AD) Sanskrit story teller. *Hitopadesa* (Salutary Advice)-selected stories from *Panchathanthra.*

Nasser, Gamel Abdul (1918-70) Egyptian colonel, the chief architect of the Egyptian Republic, President of Egypt (1954–70) and leader of the United Arab Movement.

Naya Chandra Suri, (14th cent) Sanskrit poet *Hammira Mahakavya* (Epic of Hammira).

Nebuchadnezer the Great (d. 562 BC. Assyrian Emperor of Babylon, legendary builder of the Hanging Gardens of Babylon,

Nehru Jawaharlal (1889-1964) Great Indian leader and Prime Minister of India (1947-1964): *Glimpses of World History, Discovery of India, Autobiography.*

Nelson, (Lord) Horatio (1758–1805) English admiral of the Napoleonic wars and victor of the battles of the Nile and Trafalgar. He was killed in action at Trafalgar.

Nero, Claudius, Caesar (A D 37 68) Roman Emperor, accused of monstrous vices.

Newman, John Henry, Cardinal (1801 1890) One of the finest prose writers of England. *Apologia pro Vita Sua, Idea of a University, Lead Kindly Light* (Poetry).

Nietzsche, Friedrich Wilhelm (1844-1900) German philosopher. *The Genealogy of Morals. The Twilight of Idols, Thus Spake Zarathustra, Ecce Homo.*

Nightingale, Florence (1820-1910) Famous English nurse, during the Crimean war, who pioneered the development of modern nursing

Northcliffie, Viscount Alfred (1865-1922) One of the most celebrated journalists of England. Proprietor and Editor, *Daily Mail.*

Nkrumah Dr. Kwame (1909 1972) Leader of the independence movement in Ghana (Africa) and President. Ousted by a coup, when abroad. He died an exile in Guinea.

Nobel Alfred Bernhard (1833–96) Swedish inventor of the dynamite and millionaire, who instituted the Nobel Prizes.

Nuffield Viscount, William Richard Morris (1877-1963) British industrialist. founder of Morris Motors Ltd. and a great philanthrophist.

Omar (c. 644). Second Caliph after Abu Bakr, a great military leader. He expanded the Caliphate to include Syria, Armenia, Mesopotamia and Persia.

Orwell, George (Eric Blair) (1903–50) English novelist. *Animal Farm, Nineteen Eighty Four.*

Osman I (1259–1326) Leader of the Ottoman Turks, who founded the Ottoman dynasty.

Ovid (**Publius Ovidius Naso**) (43 BC–16 AD) Latin poet. *Tristia*, *Amores*, *Persephone Rapta.*

Owen, Robert (1771–1858) British social reformer, apostle of economic socialism.

P

Paderewaski (Ignace Jan (1860-1941) Polish paintist, acknowledged as one of the greatest paintists of all time.

Panini (4th cent. BC) Sanskrit grammarian *Ashtadhyayi* (Book of Eight Chapters)

Parnell, Charles Stewart (1846-91) Great Irish patriot and leader of the Irish Home Rule movement. His romantic love for Kitty O'Shea, ruined his political career.

Pasternak, Boris Leonidovich (1890-1960) Russian novelist. *Dr. Zhivago.*

Patanjali (2nd cent. BC) Sanskrit grammarian, *Mahabhashyam*(Commentary on Panini).

Patel, Sardar Vallabhai (1876-1950) A staunch lieutenant of Gandhiji and fighter for freedom. He was Deputy Prime Minister of free India and was responsible for the integration of Princely States into the Union.

Pericles (c. 490 429 BC) Athenian leader, celebrated orator and statesman.Athens reached the zenith of her glory under him.

Peron, Juan (1896–1974) The most colourful of latter day Latin-American leaders Peron became President of Argentina in 1946. He was driven out by the army in 1955 but staged a glorious come-back, eighteen years later to become President again in 1973. He died on July 1, 1974 while still in office.

Peter the Great (1672-1725) Tsar of Russia, the builder of Petrograd (now Leningrad), the Kremlin and Peterhof the Versailles of Moscow.

Phidias (5th cent.BC) the greatest of Greek sculptors. (See Wonders of the World)

Picasso, Pablo, Ruiz (1881–1973) Spanish painter, pioneer of Cubist painting. He has diverted modern painting into new channels. His painting *Guernica*, representing the bombing of Guernica during the Spanish civil war, is the most celebrated painting of the Century.

Pindar (522-453 BC) Greek poet, who glorified the feats of Ancient Greeks.

Pitman, Sir Isaac (1813-97) English publisher, who popularised the short hand system,

Pizarro, Francisco (c. 1478-1541). Spanish conquistador, the counterpart of Cortez in Peru. He looted Peru and destroyed the Inca Empire.

Plato (427–347 BC) Greek philosopher. *The Republic*, *Apology of Socrates*, *Phaedo*, *Laws*.

Pliny the Elder (A D 23-79) Latin philosopher. His *Natural History* is an encyclopaedia of all scientific knowledge available at the time.

Plutarch (c. AD 45-120) Latin biographer. *Lives*.

Poe, Edgar Allen (1809 49) American poet and short story writer. *Raven*, *The Bells*, *Tales of Mystery* (prose).

Pope, Alexander (1688-1744) English satirist and poet. *Rape of the Lock*, *Dunciad*, *Essay on Man*.

Polo, Marco (1256 1323) Venetian traveller, favourite at the Court of Kublai Khan who wrote a vivid account of his experiences in Asia and the East.

Ptolemy I (4th cent. BC) A friend of Alexander, Ptolemy set up a dynasty of his own in Egypt as soon as Alexander died in 323 BC. He established a Museum (house of the Muses) at Alexandria, which very soon became a great centre of learning.

Pushkin, Alexander (1799–1837) First great Russian poet. *Eugene Onegin* (a novel in verse).

Q

Quisling, Vidkun (1887-1945). Norwegian politician, who supported Hitler's conquest of Norway. His name has now become a synonym for treachery.

R

Rabelais, Franciois (c. 1495-1553) French writer. *Abbey of Thelene* (a Utopia), *Gargantua and Pantagruel.*

Racine, Jean (1639-1699) French dramatist. *Athalie.*

Rajagopalachari, C. (Rajaji) (1879-1972) Prominent Congress leader—the first Indian to became Governor General, founder of the Swatantra Party.

Rajasekhara (AD 10th cent.) *Karpoora Manjari*- a romantic drama.

Ram, Mohan Roy (1772-1833) Forward-looking Bengali social reformer, helped the government in the abolition of Sati and the introduction of Western education in India.

Rameses II (c. 1317-1250 BC) Egyptian Pharaoh, builder of many beautiful temples.

Ranjit Singh (d. 1839) Sikh King of Punjab, a famous soldier and statesman.

Raphael (1483-1520) Italian painter. His Madonnas (Six in number) are his greatest paintings *The Sistine Madonna* is the most famous of the lot.

Rasmussen, Knud, J. V. (1879-1933) Danish explorer, discoverer of Greenland and the Arctic.

Rasputin, Gregory Y. (1871-1916) Up-country Russian monk, who exercised considerable influence over Tsar Nicholas II and was known as the 'rascal monk'. He was murdered by his enemies at Court.

Rembrandt, Harmens Van Rijn (1606-69) Dutch painter and engraver, counted among the greatest of European painters. He excelled in all types of painting, portraits, landscapes, group paintings and religious themes.

Renoir, Auguste (1841-1919) French painter of the Impressionist School, distinguished in stills and landscapes. His masterpieces are *La Loge, Les Paraphuices, La Premiere Sartie.*

Reuter, Julius de (1821-99) German pioneer of international news agency, founder of Reuters.

Reza Shah Pahlevi (1877-1941) Founder of the present ruling dynasty in Iran. Shah of Iran (1923—41).

Rhodes, Cecil John (1853-1902) British businessman, who organised the establishment of British colonies in Africa.

Richelieu, Armand, Jean du Plessis, Cardinal (1585-1642) French Minister of Louis XIII. He laid the foundations of the Grand Monarchy in France. Founder of the French Academy.

Robespierre Maximillien, Francois M. I. de (1758-94) One of the trio of French Revolutionary leaders. He outlived his colleagues Danton and Marat but was himself guillotined during the Reign of Terror.

Rockefeller, John Davison (1836-1937) American oil magnate and millionaire —philanthropist.

Rodin, Anguste (1841-1917) French sculptor, famous for his imaginative sculptures.

Roland, Romaine (1866—1944) French novelist. *Jean Christopher.*

Rommel, Field Marshal Erwin (1891-1944). The most distinguished German general of the Second World War.

Roosevelt, Franklin Delano (1882-1945) Twice President of USA, one of the founders of the UNO.

Rousseau, Jean Jacques (1712-1778) French political philosopher, *Social Contract, Confessions, Emil.*

Rosetti, Dante Gabrial (1828-82) Artist and poet of Italian stock, settled in England. His poem *Blessed Damozel* is a classic in English.

Rothschild, Anselm Meyer (1743-1812) German Jew, founder in Frankfurt of the international banking house of Rothschilds.

Rubens, Sir Paul (1577-1640) Flemish painter who painted the portrait of Charles I of England and was knighted by him. His best known painting is *Adoration of the Magi.*

Russell, Bertrand (Arthur William) (1872-1970) English writer and philosopher. *History of Western Philosophy, Marriage and Morals,Problems of Philosophy.*

S

Saladin (1137-93) Muslim Sultan of Egypt, who called for a Jehad (holy war) against European crusaders. He captured Jerusalem during the Second Crusade and held the cruseders at bay in the Third Crusade.

Salazar, Antonio d' Oliveira (1889-1970) Dictator of Portugal from 1932 to 1968.

Sandhyakara (12th cent. AD) Sanskrit poet. *Rama Charita* * (Story of Rama)

Santayana, George (1863-1952) Spanish-born American philosopher. *The Life of Reason* (5 vols),*The Realm of Truth.*

Sanger, Margaret (1833-1966) American lady, who popularised the idea of Birth Control.

---

* This is a long poem—an epic that conveys a double meaning—one suggesting the legendary hero Sri Rama and the other, the historical King Ramapala of Bengal.

San Martin, General, Jose de (1778 1850) Spanish leader of Argentina, who organised the liberation of three countries, Argentina, Chile and Peru from Spanish rule.

Sappho of Lesbos (early 6th cent. BC. Greek poetess of romance and amour) *Unrequited Love*·

Sargon I (c. 2750 BC) Akkadian King, who conquered Sumeria and established the first great empire in history.

Schiller, Johan Christoph Friedrich (1759–1805) German dramatist and poet. *William Tell, The Maid of Orleans Wallenstein, Mary Stuart* (dramas).

Schlegel, Friedrich von (1772 1829) German poet. *Lucinde.*

Schopenhauer, Arthur (1788-1860) German philosopher. *The World as Will and Idea, Of the Will of Narure.*

Scipio, Publius Cornelius (Scipio Africanus the elder) (c. 232 183 BC) Roman general who turned the tables on the Carthaginian general Hannibal.

Schubert, Franz Peter (1797–1825) Austrian composer, who died at the early age of 31. He produced nearly 600 songs, in addition to symphonies.

Seneca, Lucius Annaeus (c. 4 BC 56AD) Stoic philosopher, tutor of Nero. Sentenced to end his own life, he killed himself courageously.

Scott, Sir Walter (1771–1832) English novelist. *Talisman, Ivanhoe, Kenilworth etc.*

Shakespeare, William (1564-1616) The greatest English poet *Hamlet, Othello, King Lear, Macbeth* (tragedies), *As You Like It, Twelfth Night, Midsummer Night's Dream, Comedy of Errors* (comedies), *Henry IV, V, Richard II, Julius Caesar* (historical dramas) etc.

Shaw, George Bernard (1856-1950) English dramatist *Man & Superman, Doctor's Dilemma, Arms and the Man, Mrs. Warren's Profession, Major Barbara.*

Shi-Hwang-ti. (c. 246–210 BC) Chinese Emperor, who organised the building of the Great Wall of China.

Shelley, Percy Bysshe (1792–1822) English poet. *Adonais, Prometheus Unbound, West Wind, Skylark.*

Sheridan, R. B. (1751-1816) English orator and dramatist. *The School for Scandal, The Rivals.*

Sivaji (1630-1680) Great Indian soldier and statesman, founder of the Maratha Empire in India.

Smith Adam (1723 90) English economist *The Wealth of Nations.*

Socrates (470 - - 399 BC) Greek philosopher, mentor of Plato, condemned death by the Athenian government.

Solon (638-558 BC) One of the seven sages of Greece, the first great Law giver of Athens.

Solomon (c. 960 BC) Successor and son of David, King of Jews –builder of the temple at Jerusalem.

Somadeva (11th cent. AD) Sanskrit poet *Katha Sarit Sagar* (Ocean of Story)–collection of stories.

Sophocles (495 406 BC) Greek dramatist. *Antigone, Oedipus, the King, Oedipus at Colonus.*

Spencer, Herbert (1820 1903) English philosopher. *Synthetic Philosophy* (10 vols.) *Progress: its Law and Cause.*

Stalin, Joseph Vissarionovich (1879-1953) Russian communist dictator and successor of Lenin. He established a completely totalitarian regime in Russia.

Stanley, Sir Henry M. (1841–1904)· African explorer, who sought out David Livingston in Africa. He carried on his own exploration in Africa.

Stevenson, Robert Louis (1850 94) English novelist, *Treasure Island, Dr. Jekyll and Mr. Hyde, Kidnapped.*

Steinbeck, John (1902–68) American novelist. *The Pearl, Grapes of Wrath.*

Stoker Bram (Abraham) (1847-1912) British writer, famous as the author of the horror-story *Dracula.*

Straus, Richard (1864–1949) German composer famous for his operas-*Salome, Elektra* and Symphonic poems *Don Juan, Don [Qiuxote etc.*

Spinoza, Baruch (1632 1677) Dutch (Jewish) philosopher. *Treatise on Religion and Politics, Ethics.*

Stowe, Harriet, Elizabeth Beecher (1811-1896) American novelist, *Uncle Tom's Cabin.*

Subandhu (7th cent. AD) Sanskrit poet *Vasavadatha.*

Subash Chandra Bose. (Netaji) (1896 1945) Bengali nationalist leader, who fell out with Gandhiji on political policies. He organised the Indian National Army in Malayasia during World War II. Reported to have died in an air crash in 1945.

Sudraka (5th cent. AD) Sanskrit dramatist. *Mrichha Khadiga* (Clay cart).

Sukarno (1902-70) Leader of Indonesian independence and President of Indonesia (1945-66). His alliance with the communist party and the reckless policies he pursued, provoked country wide dissatisfaction. He was removed from power in 1966 by General Suharto.

Suleiman the Magnificent (1496-1566) The greatest of the Ottoman Sultans of Turkey.

Sun Yat Sen (1867-1925) Chinese nationalist leader who founded the Chinese Republic.

Smuts, Field Marshal (1870-1950) South African general and statesman, one of the dominating figures of his time.

Swift, Jonathan Dean (1667-1745) English novelist. *Gulliver's Travels, A Tale of a Tub, The Battle of the Books.*

Sydney, Sir Philip (1554-86) English poet, statesman and soldier. His famous works are *Arcadia, Apology for poetry.*

T

Tacitus. Catus Cornelius (55-c. 120) Latin historian. *Germania, Annals, Histories.*

Tagore, Rabindranath (1861-1941) Indian poet. *Gitanjali, Post Office, Gardener, Chitra* etc.

Tata, Jamshedji N. (1839-1904) Parsi pioneer of industry in India, founder of the house of Tatas.

Tai-tsung (c. AD 627) The second Chinese emperor of the Tang dynasty, under whom the Chinese empire extended to its farthest limits.

Tarqiun the proud, the last king of Rome, banished in 510 BC. Thereafter, Rome had a republican government headed by consuls.

Tasman, Abel Janszoon (c. 1602-1689) Dutch navigator, who discovered Tasmania and New Zealand.

Thackeray, William Makepeace (1811-63) English novelist. *Vanity Fair, Henry Esmond, Book of Snobs.*

Tchaikovasky Peter Ilich (1840-93) Russian composer, who did all types of musical compositions.

Theocritus (285-247 BC) Greek poet. *Idylls, Bion, Lament of Adonis.*

Themistocles (c. 514-449 BC) Athenian statesman and architect of Greek victory in the naval battle of Salamis.

Theodosius I (the Great) (346-395) Byzantian Emperor, who championed the cause of Christianity.

Thucydides (c. 460-399 BC) Greek historian of the *Peloponnesian War.*

Tiglath Pileser III (c. 8th cent. BC) Assyrian King, who permanently annexed Babylon and established the New Assyrian Empire.

Tilak, Bal Gangadhar (1856-1920). A Marathi leader, who led the extremist faction of Independence movement between 1900—1920.

Titan (Tiziano Vecelle) (1477-1567) Italian painter of international fame.

Tolstoy, Leo Count (1828 1910) Russian novelist. *Anna Karenina, War and Peace, Cossacks, Resurrection.*

Trotsky, Leon (Lev Davidovich Bronstein) (1879-1940) Russian revolutionary and commander of the Red Army. He was Lenin's right-hand man, but on Stalin's capturing power, he was exiled and ultimately assassinated in Mexico.

Turgenev, Ivan Serveyvich (1818 83) Russian novelist. *Smoke, A Sportsman's Sketches, Fathers and Sons.*

Tut-ankh-amen (c. 1350 BC) Pharaoh of Egypt whose tomb, left untouched by robbers, was opened in 1932.

Twain, Mark (Samuel L. Clemens) (1835 1910) American novelist. *Tom Sawyer, Huckleberry Finn.*

Tzu Hsi (1834 1908) Dowager empress of China, who supported the Boxer Rebellion.

Vanderbilt, Cornelius (Commodore) (1794 1877) American rail-road king and founder of the Vanderbilt University.

Vakpati (AD. 8th cent.) Sanskrit poet *Ganda Vadha* (Slaying of Ganda) describes the exploits of Yasovarma, King of Kanakabuja.

Valmiki (6th cent. BC) Sanskrit epic poet. *Ramayana.*

Van-Gogh, Vincent (1853-1890) Gifted Dutch painter.

Vatsyayana (AD 5th cent.) Sanskrit writer *Kama Sutra* (Art of sex)

Velasquez, Diego Rodrigues de Silvey (1599-1660) Spanish painter, ranked among the premier painters of Europe.

Verne, Jules (1828-1905) French novelist, the first science fiction writer. *Around the World in Eighty Days, Five Weeks in a Balloon, Twenty Thonsand Leagues Under the Sea, From the Earth to the Moon.*

Victoria, Queen Empress (1819-1901) The longest reigning British monarch. She was the first British monarch to assume the title of Empress of India.

Vidyapathi (Legendary author) Sanskrit prose writer, *Pancha Tantra* (Five Treatises) a collection of tales.

Vijneswara (AD 11th cent.) Sanskrit writer, *Mitakshara,* a treatise on the law of Hindu inheritance.

Villon, Francois (1431-c. 1485) The greatest French lyric poet. *The Testament, Legacy.*

Virgil (Publius Vergilius Maro) (70-19 BC) Latin epic poet. *Aeneid Georgics.*

Visakadatta (AD. 6th cent.) Sanskrit dramatist, *Mudra Rakshasa (*Minister's Signet Ring), *Devi Chandragupta* (The Queen and Chandragupta)—political dramas.

Voltaire, Francois, Marie de (Francois Arouet, (1694-1778) French philosopher and writer. *Dictionary of Philosophies, Merope, Candide*

Vyasa, (6th cent. BC.) Sanskrit epic poet. *Mahabharata* considered as the longest epic in the world. It has nearly 100,000 stanzas.

W

Wagner, Richard (1813-83) German composer who set a new musical pattern, a combination of music and drama.

Washington, George (1732-1799) Leader of the War of American Independence and the first President of USA.

Webster, Noah (1758-1843) American lexicographer. *Dictionary of English Language*

Weizmann, Chaim (Dr.) (1874-1952) Russian born scientist, leader of the Zionist movement and the first President of Israel.

Wellington, Arthur Wellesly, Duke of (1769-1852) One of the greatest generals of Britain. Defeated Napoleon at the battle of Waterloo, 1814. Prime Minister of England 1827-1830.

Wells, H. G. (1866-1946) English writer. *The Time Machine, The Invisible Man, Outline of History,*

Wilde, Oscar (1854-1900) English writer and celebrated wit author. *The Ideal Husband, De Profundis, Picture of Dorian Gray.*

Wilhelm II, the Kaiser (1859-1941) Emperor of Germany who started the 1st World War. Being defeated, he abdicated and sought refuge in Holland, where he died in exile.

Wodehouse, P. G. (1881 1971) English humorist. *My Man Jeeves, Summer Lightning etc.*

Wood, Mrs Henry (1814 1887) English novelist. *Last Lynn.*

Wordsworth, William (1770 1850) English poet. *Tintern Abbey. Michael, Ode on Intimations of Immortality.*

X

Xenophon (444-359 BC) Greek soldier and historian. Author, *Anabasis* (The Retreat of the Ten Thousand).

Xerxes (c. 519 465 BC) Persian emperor, successor of Darius, who was defeated by the Greeks in the battle of Salamis.

Z

Zahroff Sir Basil (b. Baselios Zacharias) (1849-1936) Turkish born British financier and armaments manufacturer.

Zeno of Citium (c. 340-264 BC) Greek philosopher, founder of the Stoic school. Zeno taught in *Stoa Thoilika* of Athens, hence *Stoic.*

Zola, Emile (1840-1902) French novelist. *Theresa Raquin, Nana.*

Zoroaster, or Zaruthustra (c. 7th cent. BC) Religious leader, founder of Zorastrianism. *Zend Avesta.*

WEIGHTS AND MEASURES

In modern times, two systems of weights and measures came to dominate international trade and commerce. They were the Foot-Pound-Second (F. P. S) system, which later came to be known as the Imperial System and the Centimetre-Gramme-Second (C. G. S.) system, which came to be known as the Metric System. The Foot and the Centimetre were units of linear measurement, the Pound and the Gramme, units of mass and the Second, unit of time. From these original units were evolved the *inch*, *ounce* and *quart* of the Imperial System and the *metre*, *kilogram* and *litre* of the Metric System.

The Imperial System

The Imperial System of inch (length), ounce (weight) and quart (volume) was derived from the old Anglo-Saxon measurements. They were rough and ready units based on standards that were readily available everywhere the human hand for example. By their very nature, they could never be precise. Although, these units are precisely defined now, their conversion into larger or smaller units, is an arithmetical torment. The mile for example, is 12×3×220×8 inches, that is, 63,360 inches. The Imperial System prevailed in the British Empire and the English speaking countries generally, including the United States.

The Metric System

The Metric System was first adopted by France in 1790. Its basic units were metre (length), kilogram (weight) and litre (volume). The metre was equal to one ten-millionth of a quardrant of the Earth's meridian. The kilogram was defined as the mass of a cubic decimetre (0.1 metre) of water. The litre was the volume of a cubic decimetre of water.

In 1889 the metre and the kilogram were re-defined in terms of a bar of platinum-iridium alloy, which was stored in a vault in Paris.

The Metric System was followed by France and other European countries and their colonies and dependencies.

Today the Metric System has been adopted by 83 nations. There are sixteen countries including United Kingdom, who have already decided to change over to the Metric System and are in the process of doing so. *Australia, Bahrain, Canada, Ghana, Republic of Ireland, Kenya, Kuwait, New Zealand, Pakistan, Rhodesia, South Africa, Swaziland, Tanzania, Uganda, United Kingdom* and *Zambia* Nine countries still remain outside the metric group. They are, *Sri Lanka, Gambia, Guyana, Jamaica, Liberia, Malawi, Nigeria, Sierra Leone* and *U. S. A.*

Multiples and Fractions

Multiples in the Metric System are indicated by the prefixes deca (10), hecto (100) and kilo (1000) and fractions by deci (1/10), centi (1/100), and milli 1/1000.) For multiples larger than 1000 and subdivisions smaller than 1/1000, the following prefixes have been adopted:

Tera = 10^{12} (1 followed by 12 zeros
Giga = 10^{9} ,, 9
Mega = 10^{6} ,, 6
Kilo = 10^{3} ,, 3
Hecto = 10^{2} ,, 2
Deca = 10^{1} ,, 1
Deci = 10^{-1} (.1)
Centi = 10^{-2} (.01)
Milli = 10^{-3} (.001)
Micro = 10^{-6} (Decimal point, followed by 5 zeros and 1)
Nano = 10^{-9} (Decimal point, foflowed by 8 zeros and 1)
Pico = 10^{-12} (Decimal point, followed by 11 zeros and 1)
Femto = 10^{-15} (Decimal point, followed by 14 zeros and 1)
Atto = 10^{-18} (Decimal point, followed by 17 zeros and 1)

Thus a kilometre is 1,000 metres and a megametre is 1,000,000 metres while a millimetre is 0.001 metre and a micrometre is 0.000001 metre.

Table 331

Tables of Metric Weights and Measures

Linear Measure

10	millimetres (mm.)	=	1	centimetre	(cm.)
10	centimetres	=	1	decimetre	(dm.)
10	decimetres	=	1	metre	(m.)
10	metres	=	1	decametre	(dcm.)
10	decametres	=	1	hectometre	(hm.)
10	hectometres	=	1	kilometre	(km.)

Area Measure

100	square millimetres	=	1	square centimetre	
10,000	square centimetres	=	1	square metre	
100	square metres	=	1	are	(a.)
100	ares	=	1	hectare	(ha.)
100	hectares	=	1	square kilometre	(km.)

Volume Measure

	one litre	=		0.001 cubic metre	
10	millilitres (ml.)	=	1	centilitre	(cl.)
10	centilitres	=	1	decilitre	(dl.)
10	decilitres	=	1	litre	(l.)
10	litres	=	1	decalitre	(dcl.)
10	decalitres	=	1	hectolitre	(hl.)
10	hectolitres	=	1	kilolitre	(kl.)

Weight

10	milligrams (mg)	=	1	centigram	(cg.)
10	centigrams	=	1	decigram	(dg.)
10	decigrams	=	1	gram	(g.)
10	grams	=	1	decagram	(dcg.)
10	decagrams	=	1	hectogram	(hg.)
10	hectograms	=	1	kilogram	(kg.)
1,000	kilograms	=	1	metric ton	(t.)

Cubic Measure

1,000	cubic millimetres	=	1	cubic centimetre
1,000	cubic centimetres	=	1	cubic decimetre
1,000	cubic decimetres	=	1	cubic metre

Table 332

Tables of Equivalents

1	centimetre	0.3937 inch
1	chain (surveyor's)	66 feet 20.1168 metres (exactly)
1	decimetre	3.937 inches
1	decametre	32.808 feet
1	foot	0.3048 metre (exactly)
1	inch	2.54 centimetres
1	kilometre	0.621 mile
1	metre	39.37 inches or 1.094 yds.
1	mile	1.609 kilometres
1	millimetre	0.03937 inch
1	yard	0.9144 metre (exactly)

Table 333

Simple Conversion Table

Indian Units

Tolas to grams											
Tolas	...	1	2	3	4	5	6	7	8	9	10
Grams	...	11.66	23.33	34.99	46.66	58.32	69.98	81.65	93.31	104.97	116.64
Seers	...	1	2	3	4	5	6	7	8	9	10
Kilograms	...	0.93	1.87	2.80	3.73	4.67	5.60	6.53	7.46	8.40	9.33
Maunds to Quintals											
Maunds	...	1	2	3	4	5	6	7	8	9	10
Quintals	...	0.37	0.75	1.12	1.49	1.87	2.24	2.61	2.99	3.36	3.73

Table 334

Double Conversion Tables for Weights and Measures

Note: The central figures (1 to 100) represent either of the two columns beside them, as the case may be.

Examples:—1 centimetre=0.394 inch and 1 inch=2.540 centimetres. 1 metre=1.094 yards and 1 yard=0.914 metre. 1 kilometre=0.621 mile and 1 mile=1.609 kilometres.

Centimetres		*Inches*	*Metres*		*Yards*	*Kilometres*		*Miles*
2.540	1	0 394	0.914	1	1.094	1 609	1	0 621
5.000	2	0.787	1.829	2	2.187	3.219	2	1.243
7.620	3	1 181	2.743	3	3.281	4.828	3	1.864
10.160	4	1.575	3.658	4	4.374	6 437	4	2.485
12 700	5	1.969	4.572	5	5.468	8 047	5	3.107
15.240	6	2.362	5 486	6	6 562	9.656	6	3.728
17.780	7	2.756	6 401	7	7.655	11.266	7	4.350
20.320	8	3 150	7.315	8	8.749	12 875	8	4.971
22 860	9	3 543	8 230	9	9 843	14.484	9	5.592
25 400	10	3 937	9.144	10	10 936	16.094	10	6.214
127.000	50	19.685	45.720	50	54.681	80.468	50	31.068
254.000	100	39.370	91.439	100	100.361	160 936	100	62.136

Hectares		*Acres*	*Square Kilometres*		*Square Miles*	*Kilograms*		*Av. Pound*
0 404	1	2 471	2.590	1	0.386	0.454	1	2.205
0 809	2	4.942	5.180	2	0 772	0.907	2	4 409
1.214	3	7 413	7.770	3	1.158	1.361	3	6.614
1.619	4	9 884	10 360	4	1.544	1.814	4	8.818
2.023	5	12.355	12.950	5	1.931	2 268	5	11.023
2 428	6	14.826	15.540	6	2 317	2 722	6	13 228
2.833	7	17.298	18 130	7	2 703	3 175	7	15.432
3.237	8	19.769	20 720	8	3.089	3.629	8	17.637
3 642	9	22.240	23 310	9	3 475	4.082	9	19.842
4 047	10	24 711	25.900	10	3.861	4 536	10	22 046
20 234	50	123.554	129.498	50	19 306	22.680	50	110 231
40 468	100	247.108	258.995	100	38.611	45 359	100	220.462

Metric Tonnes		*Long Tons*	*Metric Tonnes*		*Short Tons*	*Litres*		*Pints*
1.016	1	0.984	0.907	1	1.102	0.568	1	1.760
2 032	2	1.968	1.814	2	2.205	1 136	2	3.520
3.048	3	2.953	2 722	3	3.307	1 705	3	5 279
4.064	4	3.937	3.629	4	4 409	2 273	4	7.039
5.080	5	4.921	4.536	5	5.512	2.841	5	8 799
6.096	6	5 905	5.443	6	6.614	3.409	6	10 559
7.112	7	6.889	6.350	7	7.716	3 978	7	12.319
8.128	8	7 874	7.257	8	8.818	4.546	8	14.078
9 144	9	8 858	8.165	9	9.921	5.114	9	15.838
10.161	10	9.842	9 072	10	11 023	5.682	10	17.598
50.803	50	49.211	45 359	50	55.116	28.412	50	87.990
110.605	100	98.421	90.718	100	110.231	56 824	100	175 980

Litres		*Gallons*	*Litres*		*Gallons*
4 546	1	0.220	31.822	7	1.540
9 092	2	0.440	36.368	8	1 760
13·638	3	0.660	40.914	9	1.980
18.184	4	0.880	45.460	10	2 200
22 730	5	1.100	227.298	50	10 999
27 276	6	1.320	454.596	100	21.997

INTERNATIONAL SYSTEM OF UNITS (S. I.)

The International System of Units had its beginnings in 1870, when France called together a Convention of States to evolve a unified metric system. In 1875, the Treaty of the Metre was signed in Paris. The signatories to the treaty agreed to set up and maintain a permanent bureau at Paris called *Bureau Internationals deu Poids et Measures* (International Bureau of Weights and Measures). This Bureau is to function under a *Conference Generale des Poids et Measures* (General Conference of Weights and Measures). The General Conference appoints a committee of specialists, known as the *Comite International de Poids et Measures* (International Committee of Weights and Measures) whose function is to implement the decisions of the Conference.

In 1954 the General Conference, adopted one particular form of the metric system as an internationally suitable system In 1960, the system was given name *System International de Unites* (*S. I.*) the *International System of Units*, shorteuned to *S. I*

The spectacular development of science and technology, compelled the conference to define precisely, generally known units of measurement like length, mass or time. In addition, the conference had to adopt and define new units of measurement. The labours of the Conference in this regard, led to the evolution of a complicated and highly technical international system. The definitions are stated in strict scientific jargon, which the layman can hardly follow. A brief outline of the system is given below.

The S. I. Units are broadly divisible into 3 classes.

(1) Base units, which form the foundations of the system

(2) Derived units, which are generally formed by a combination of Base units.

(3) Supplementary units, which are used in angular measurement.

The special feature of the system is its coherence. A coherent set of units can be defined as one that arises, when a quotient or product of any two quantities leads to the unit of the resultant quantity. In other words, all units of the system hold together and are explicable in terms of other units.

Base Units

(1) *Metre* (m) unit of length.

(2) *Kilogram* (kg) unit of mass.

Mass is not be confused with weight or force. Force has its own unit called *Newton*.

(3) *Second* (s) unit of time. Originally, the *Second* was defined as the fraction 1/86400 of a mean solar day. As this is very vague, the *Second* has been re-defined in terms of the radiation of Caesium-133 atom.

(4) *Ampere* (A) unit of electric current. This unit has been re-defined as that constant current, which would produce a force equal to $2x10^7$ newton per metre of length, between two parallel conductors of infinite length, placed on metre apart.

(5) *Kelvin* (K) unit of thermo-dynamic temperature. This has been defined as 1/273-16 of the thermo-dynamic temperature of the triple point of water. The thermo dynamic temperature is expressed by the symbol T. The Centigrade Scale or the Celsius scale has also been accepted by the Conference. (see Temperature *infra*.)

(6) *Candela* (cd) unit of Luminous intensity or Luminosity.

(7) *Mole* (mol) Amount of substance. This has been defined as the Substance of a System "which contains as many elementary entities as there are atoms in 0.102 kg of Carbon-12".

Simple expressions in terms of Base Unit

	Name	*Symbol*
Area	Square metre	m^2
Volume	Cubic metre	m^3
Speed, velocity	Metre per second	m/s
Density	Kilogram per cubic metre	kg/m^3
Specific Volume	Cubic metre per kilogram	m/kg
Luminance	Candela pe sq. metre	cd/m^2

Derived Units

Some derived units have been given special names. They are indicated below.

		Name and Symbol
1.	Frequency	hertz (HS)
2.	Force	newton (N)
3.	Pressure	pascal (Pa)
4.	Quantity of Electricity, electric charge	coulomb (C)
5.	Electric tension, electric potential	Volt (V)
6.	Electric resistance	Ohm
7.	Luminous fux	lumen (lm)
8.	Illuminance	llx (lx)

Supplementary Units

Names

1. Radian (Plane angle)
2. Steradian (Solid angle)

3. Angular Velocity (Radian per Second)
4. Angular Acceleration (Radian per second Squared)
5. Radiant intensity (Walt per steradian)
6. Radiance (Satt per Square metre Steradian)

Rules

Very elaborate rules have been formulated, with regard to notation, type to be used, prefix symbols and the exponent to be prefixed to a symbol. Symbols are not to be followed by full stop and do not change in the plural.

TEMPERATURE

The unit of temperature accepted by the International System (S I.) is the Kelvin* or the degree Celsius; as distinguished from Fahrenheit. The Celsius scale was originally known as the Centigrade scale. It was renamed Celsius scale to commemorate its Swedish inventor, Celsius.

The Kelvin Scale was introduced by a British physicist, William T. Kelvin Zero degree Kelvin (K) is the Absolute Zero, which is equivalent to —273 16° Celsius and — 459.69° Fahrenheit. Absolute Zero is the point at which molecules have no heat energy. At this point, all motion stops.

Temperature Conversion Table

DEGREES C.	DEGREES	DEGREES F	DEGREES C	DEGREES.	DEGREES F.	DEGREES C	DEGREES	DEGREES F
−34.4	−30	−22.0	−9.4	+15	+59.0	+15.6	+60	+140.0
−33.9	−29	−20.2	−8.9	+16	+60.8	+16.1	+61	+141.8
−33.3	−28	−18.4	−8.3	+17	+62.6	+16.7	+62	+143.6
−32.8	−27	−16.6	−7.8	+18	+64.4	+17.2	+63	+145.4
−32.2	−26	−14.8	−7.2	+19	+66.2	+17.8	+64	+147.2
−31.7	−25	−13.0	−6.7	+20	+68.0	+18.3	+65	+149.0
−31.1	−24	−11.2	−6.1	+21	+69.8	+18.9	+66	+150.8
−30.6	−23	−9.4	−5.6	+22	+71.6	+19.4	+67	+152.6
−30.0	−22	−7.6	−5.0	+23	+73.4	+20.0	+68	+154.4
−29.4	−21	−5.8	−4.4	+24	+75.2	+20.6	+69	+156.2
−28.9	−20	−4.0	−3.9	+25	+77.0	+21.1	+70	+158.0
−28.3	−19	−2.2	−3.3	+26	+78.8	+21.7	+71	+159.8
−27.8	−18	−0.4	−2.8	+27	+80.6	+22.2	+72	+161.6
−27.2	−17	+1.4	−2.2	+28	+82.4	+22.8	+73	+163.4
−26.7	−16	+3.2	−1.7	+29	+84.2	+23.3	+74	+165.2
−26.1	−15	+5.0	−1.1	+30	+86.0	+23.9	+75	+167.0
−25.6	−14	+6.8	−0.6	+31	+87.8	+24.4	+76	+168.8
−25.0	−13	+8.6	0	+32	+89.6	+25.0	+77	+170.6
−24.4	−12	+10.4	+0.6	+33	+91.4	+25.6	+78	+172.4
−23.9	−11	+12.2	+1.1	+34	+93.2	+26.1	+79	+174.2
−23.3	−10	+14.0	+1.7	+35	+95.0	+26.7	+80	+176.0
−22.8	−9	+15.8	+2.2	+36	+96.8	+27.2	+81	+177.8
−22.2	−8	+17.6	+2.8	+37	+98.6	+27.8	+82	+179.6
−21.7	−7	+19.4	+3.3	+38	+100.4	+28.3	+83	+181.4
−21.1	−6	+21.2	+3.9	+39	+102.2	+28.9	+84	+183.2
−20.6	−5	+23.0	+4.4	+40	+104.0	+29.4	+85	+185.0
−20.0	−4	+24.8	+5.0	+41	+105.8	+30.0	+86	+186.8
−19.4	−3	+26.6	+5.6	+42	+107.6	+30.6	+87	+188.6
−18.9	−2	+28.4	+6.1	+43	+109.4	+31.1	+88	+190.4
−18.3	−1	+30.2	+6.7	+44	+111.2	+31.7	+89	+192.2
−17.8	0	+32.0	+7.2	+45	+113.0	+32.2	+90	+194.0
−17.2	+1	+33.8	+7.8	+46	+114.8	+32.8	+91	+195.8
−16.7	+2	+35.6	+8.3	+47	+116.6	+33.3	+92	+197.6
−16.1	+3	+37.4	+8.9	+48	+118.4	+33.9	+93	+199.4
−15.6	+4	+39.2	+9.4	+49	+120.2	+34.4	+94	+201.2
−15.0	+5	+41.0	+10.0	+50	+122.0	+35.0	+95	+203.0
−14.4	+6	+42.8	+10.6	+51	+123.8	+35.6	+96	+204.8
−13.9	+7	+44.6	+11.1	+52	+125.6	+36.1	+97	+206.6
−13.3	+8	+46.4	+11.7	+53	+127.4	+36.7	+98	+208.4
−12.8	+9	+48.2	+12.2	+54	+129.2	+37.2	+99	+210.2
−12.2	+10	+50.0	+12.8	+55	+131.0	+37.8	+100	+212.0
−11.7	+11	+51.8	+13.3	+56	+132.8	+38.3	+101	+213.8
−11.1	+12	+53.6	+13.9	+57	+134.6	+38.9	+102	+215.6
−10.6	+13	+55.4	+14.4	+58	+136.4	+39.4	+103	+217.4
−10.0	+14	+57.2	+15.0	+59	+138.2	+40.0	+104	+219.2

* Absolute zero is −273.16° C. or −459.69° F.

---

* In 1967, the name Kelvin (Symbol K) was adopted in the place of degree Kelvin (°K)

STANDARD TIME

The system of standard time is based on a longitudinal division of the Earth into 24 zones, each zone being 15° longitude. The zero zone is centred at Greenwich which gives the GMT (Greenwich Mean Time) The 12th zone is divided by the 180th meridian (International Date Line) into the plus 12 and minus 12 zones If one crosses the line going west, the date is advanced by one day and when going east, it becomes a day earlier.

The following table gives the standard time in selected cites when it is noon (Indian standard Time) in Delhi. An asterisk indicates that it is the next day.

Table 335

City	*Time*
Amsterdam	7-30 a.m.
Anchorage	8-30 p.m.
Athens	8 30 a m.
Auckland	6 30 p.m.*
Azores	4 30 a.m.
Baghdad	9 30 ,,
Bangkok	1 30 p m
Beirut	8 30 a.m
Belfast	6 30 ,,
Berlin	7 30 ,,
Bermuda	2-30 ,,
Bogota	1-30 ,,
Bombay	12 00 noon
Brussels	7 30 a m.
Bucharest	8 30 ,,
Buenos Aires	3-30 ,,
Monrovia	5 30 ,,
Montevideo	3 30 ,,
Montreal	1-30 ,,
Moscow	9 30 ,,
Nome	7 30 p.m.
Noumea	5 30 p.m.*
Okinawa	3 30 p m.*
Oslo	7 30 a.m.
Paris	7 30 ,,
Rangoon	1-00 ,,
Reykjavik	5 30 ,,
Rio de Janeiro	3-30 ,,
Rome	7 30 ,,
Saigon	1 30 p m.
Samoa	7 30 ,,
Cairo	8 30 ,,
Calcutta	12 00 noon
Calgary	1 30 p.m.
Caracas	2 30 a.m.
Copenhagen	7 30 ,,
Dakar	6 30 ,,
Damascus	8 30 ,,
Djkarta	2 00 p.m.*
Dublin	6 30 a.m.
Fairbanks	8-30 p.m.
Gander	3-00 a.m.
Geneva	7 30 ,,
Glasgow	6 30 ,,
Greenwich	6-30 ,,
Guam	4-30 p m.*
Guatemala C	12 30 a.m.
Halifax	2 30 ,,
Helsinki	8 30 ,,
Hong Kong	2 30 p.m *
Honolulu	8 30 ,,
Istanbul	8 30 a m.
Jerusalem	8 30 ,,
Johannesburg	8 30 ,,
Karachi	11 30 ,,
Keflavik	5 30 ,,
La Paz	2 30 ,,
Lima	1 30 ,,
Lisbon	6 30 ,,
London	7 30 ,,
Madrid	7-30 ,,
Manila	2 30 p.m.*
Melbourne	4-30 p.m *
Mexico	12-30 a m.
Midway	7-30 p.m.
San Juan	2-30 a m.
Santiago	2-30 ,,
Shanghai	2 30 ,,
Singapore	2-00 ,,
Stockholm	7 30 ,,
Suva	4 30 ,,
Sydney	4 30 p.m.*
Teheran	10-00 a.m.
Tokyo	3-30 p.m.*
Toronto	1 30 a.m.
Valparaiso	2-30 ,,
Vancouver	10 30 p.m.
Vienna	7 30 a.m.
Yokohama	3 30 p.m.
Zurich	7 30 a m.

SCIENCE

I. Theories and Principles

Science from the Latin *Scientia*, means learning or knowledge in its widest sense. In English, the word has a restricted application. It generally means physical and biological sciences.

Primitive Science

From the earliest days of civilization, science had become mixed up with magic, astrology and religion. Physical science arose from the observation of natural phenomena, like rain and shine, thunder and lightning and in the attempt to fashion crude implements to aid or expedite the satisfaction of human needs. Biological sciences proceeded from the observations of plants and animals, their productivity and reproduction and in the endeavour of man to avoid pain and suffering by medication or surgery.

All natural phenomena physical and biological, were interpreted as the operations of supernatural powers, who had to be worshipped, placated or pleased by magic rites and practices.

Transition. This primitive conception was refined and developed by the old world philosophers from Aristotle (4th cent. BC) to Aquinas (13th cent. AD). These philosophers eliminated much of the superstitious dross that had accumulated, but they could not dissociate science from metaphysics or religion. The Greek philosophers, Aristotle in particular, considered science and philosophy as one and the same. In the Middle Ages both science and philosophy had become bound up with theology. Aquinas, the greatest of the scholastic philosophers regarded all the three subjects as parts of one grand system of philosophy.

Modern Science. It was left to Galileo to break up this mis alliance and to strike out a new path for science-the path of experimental proof. This method initiated by Galileo was completed by Newton, and modern science was born. The essence of the new method was an appeal to sheer facts for proof. The new science tried to put together isolated facts in the same way as we put together the words or pieces of a puzzle. Reason was used to solve the problems of the puzzle and to form synthesis or theories. But observation or experiment was the starting point of the investigation and the final arbiter.

A=Author *T*=Treatise

c. 1000 B C India

Yajurveda (T). Numbers named up to 10^{12} (million-million)-decimal system, addition, subtraction, multiplication, division, fractions. Astronomy—the Naksatra (stars and constellations) system Enumeration of 27 or 28 naksatras headed by Krithika (Pleiades)

800—700 B C India

Taittiriyasamhita (T) Progressive arithmetical series—odd and even numbers.

Panchavimsa Brahmana (T) Geometrical progression.

Satapatha Brahmana (T) Summation of arithmetical and geometrical series.

700—600 B C India

Sulba Sutras (T) Geometry—Rules for drawing perpendiculars, squares, isosceles trapezium, etc Combination and transformation of rectilineal figures.

Lagadha (A) *Vedangajyotisa (T)* Astronomy. Elaboration of calendarical science—summer and winter solstices. Rule for determining length of days between solstices.

600-500 B C India

Baudhayana (A) Geometry-anticipation of the Pythagorean theorem*—areas of triangles, parallelograms, trapezium etc. volumes of prism, cylinder etc. squaring the circle. The concept of Algebra—quadratic equations.

Manava (A) Fixing the value of the π to 5 decimal places at 3.16049.

Apastamba (A) Square root and cube root

500-400 B C India

Katyayana (A) Indeterminate Equations

400-300 B C India

Kautilya (A) *Arthasastra (T)* Mining, metallurgy etc ; incidental references,

---

* The tradition attributing this theorem to Pythagoras started with Cicero (50 B C), nearly 5 centuries after Pythagoras. There is no mention of this theorem in Greek literature of the first 5 centuries after Pythagoras. The earliest proof of the Pythagorean theorem is given by Euclid. Baudhyana has not only stated the theorem but appears to have proved it as a standard rule for calculations.

c. 300- B C Greece

Eucild (A) *Elements* (*T*) † The first formal statement of geometrical principles.

3rd Cent. B C India

Pingala (A) *Chhandah Sutra (T)* Permutations and combinations—*meruprastara* or Pascal's triangle.

3rd Cent. B C Greece

Archimedes (A) Hydrostatics—the laws of floating bodies.

Aristarchus of Samos (A) Observations and calculations regarding rotation of the Earth and revolution round the Sun.

Eratosthenes (A) First measurement of the circumference of the Earth.

2nd Cent. B C China

Chiu Chang Suan Shu (*T*) Arithmetic in nine sections—area of the segment of a circle.

2nd Cent. BC Greece

Hipparchus (A) Measurement of the distances to the Sun and the Moon—precession of the equinoxes.

A D 140 Greece

Claudius Ptolemy (A) *Almagest* (*T*) A synthesis of the current system of astronomical knowledge in Europe—remained the Bible of European astronomers for a long time.

AD 400 India

Suryasidhanta (*T*) The first important astronomical treatise in India— was continuously revised and updated by subsequent astronomers.

AD 5th Cent. India

Aryabhata (A) *Aryabhatya (T)* Astronomy. Theory of the rotation of the Earth, epicyclic theory of planetary motions. Mathematics—the values of the "π" (3.1416) and sines—alphabetical system of expressing decimal place —value notation—extraction of square and cube roots—indeterminate equations of the first order.

AD 6th Cent. India

Brahmagupta (A) *Brahmasphuta Siddhanta and Khandakadhyaka* (*Treatises*) Astronomy—mean planetary motions, true planetary motions, problems of time, space, distance, lunar and solar eclipses—risings and settings of Planets, Moon's cusps and shadows—conjunctions of planets—Mathematics—systematic operations with zero.

Varahamihira (A) *Pancha Siddhanta (T)* A survey of the development of astronomy and an exposition of astronomical theories. *Brahat Samhita Legujataka and Yogayatra*—Treatises on astrology by Varahamihira.

Amarasimha (A) *Amarakosha (T)* A lexicon—classification and synonyms of plants, animals, metals and minerals.

AD 7th Cent. India

Bhaskara I (A) *Mahabhaskariya (T)* Mean longitude of planets—Longitude connection—Time, place, direction, spherical trignometry, latitudes and longitudes of junction stars—True longitudes of planets, rising, setting and conjunction of planets, astronomical constants.

AD 8th Cent. Arabia

Muhammed Ibn Ibrahim (A) *Sindhind and Arkand (T)* Translations into Arabic of Brahmagupta's Brahmasphutasiddhanta (Sindhind) and Khandakadyaka (Arkand).

Jabir Ibn Hayyan (Geber) (A) Treatises on alchemy.

A D 9th Cent. India

Mahavira (A) *Ganitasara Samgraha (T)* A comprehensive, compilation in mathematics including geometry, solid mensuration, quadratic, biquadratic and cubic equations and permutations and combinations.

A D 9th Cent. Arabia

Al-Khwariszi (T)— Theory of numbers in Arabic.

A D 9th Cent. India

Bhaskara II (A) *Siddhanta Siromani* (*T*) Mathematical and astronomical works–Beginnings of integral and differential calculus—the zenith of ancient Indian mathematics.

A D 10th Cent India

Govinda Bhagat (A) *Rasahrydaya (T)* A treatise on alchemy.

Manjula (T) Astronomical treatise-precession of equinoxes.

12th Cent. India

Somadeva (A) *Manasollasa (T)* Alchemy

Gangadhara (A) *Gandhasara* (*T*) A treatise on cosmetics.

---

† Euclid's *Elements* were translated into Arabic as *Tahir-U Uqlidas* by Nasiruddin Tusi (AD 13th Cent.) This was translated into Sanskrit as *Rekhaganitha* (AD 17th cent).

13th Cent. India

Rasarvana, Rasaratnakara (T) Treatises on alchemy.

13th Cent. Italy

Leonardo of Pisa (A) *Liber Abaci (T)* An exposition in Latin of Arabic arithmetic including decimal place-value numeration, zero, etc. This was the main source through which Indian numberals penetrated Europe.

16th Cent. India

Rasapradipa (T) A treatise on alchemy-one of the many treatises on alchemy prevalent in India.

1543 Poland

Mikolaj Kopernik *(Copernicus)* (A) *De Revolutionibus Orbium Coelestum (T)* Astronomy-Foundation of modern astronomy-heliocentric structure of the solar system.

1556 Germany

Georg Bauer (A) *(Agricola) De re Metalica (T)* Establishment of the science of minerals.

1559 Netherlands

Gerhard Kremer (A) *Cylindrical Projection Map (Mercator's Projection)* Establishment of the science of cartography (map making).

1589-92 Italy

Galileo Galilei (A) Discovery of the laws of motion science of dynamics

1600 England

William Gilbert (A) *De Magnete (T)* 'The earth itself is a great magnet'—the basis of magnetism and electricity.

1609—19 Germany

Johannes Kepler (A) The three fundamental laws of planetary motion.

1614 England

John Napier (A) Logarithms— a new method of arithmetical calculations.

1619 France

Rene Descartes (A) Formulation of analytical geometry.

1620 England

Francis Bacon (A) *Novum Organum (T)* First formal exposition of inductive logic.

1961 England

Robert Boyle (A) Distinction between chemical element and chemical compounds; the science of chemistry.

c. 1670 England

Isaac Newton Discovery of calculus.

1675-76 Germany

Gottfried Leibnitz (A) Discovery of calculus.

1676 Denmark

Olaus Romer (A) Measurement of the velocity of light.

1687 England

Isaac Newton (A) *Philosophie aturalis-Principia Mathematica (T)* Laws of gravitation and Universal laws of motion.

1690 Netherlands

Christian Huygens (A) The wave theory of light.

1729 England

Stephen Gray (A) Electrical conductors and non-conductors Insulation.

1728—1769 England

Joseph Black (A) Theory of specific heat.

1735 Sweden

Carolus Linneaus *(Karl von Linne)* (A) *System Natural (T)* Foundation of the science of taxonomy—divisions of the plant kingdom.

1736—1806 France

Charles Augustine Coulomb (A) Law of attraction and repulsion of electric charges.

1743-1794 France

Antoine Lavoisier (A) Founding of organic chemistry.

1792 Germany

Karl F. Gauss (A) Conception of non-Euclidean geometry.

1795 England

James Hutton (A) *Theory of the Earth* (T) Founding of the science of geology.

1799 France

Joseph Proust (A) The law of definite proportions of elements by weight in chemical compounds.

1814 France

Andre Marie Ampere (A) Laws of electromagnetic forces.

1815 England

William Smith (A) Stratigraphic geology for dating geological formations.

1820 Denmark

Christian Oersted (A) Discovery of electromagnetism.

1825—26 Russia

Nikolai I Lobachevsky (A) Formulation of non-Euclidean geometry.

1825—26 Hungary

Janos Bolyai (A) Formulation of non-Euclidean geometry.

1827 Germany

George S. Ohm (A) Statement of the law of electric conduction (Ohm's Law).

1828 Germany

Friedrich Wohler (A) Synthesis of an organic compound from inorganic matter.

1830—31 England

Michael Faraday (A) Discovery of electro-magnetic induction.

1821—1894 Germany

Von Helmholtz (A) Formulation of the law of conservation of energy—the first law of thermo dynamics.

1859 Germany

Von Bunsen and Gustav Kirchoff (A Spectrography to identify chemical elements by their spectra

1852 England

Edward Frankland (A) The concept of chemical valency.

1854 England

George Boole (A) Invention of Boolean algebra-the mathematization of logic.

1858—59 England

Charles Drawin (A) *Origin of Species* (*T*) **A. R. Wallace** (A) The Theory of Evolution—Natural Selection.

1861 Germany

Frederich Kekule (A) Establishment of organic chemistry as the chemistry of carbon compounds.

1864 England

James Maxwell (A) The mathematical theory of electro-magnetic induction.

1865 Austria

Gregor Mendel (A) Formulation of the laws of genetics.

1869 Russia

Dimitri Mendeleeff (A) Periodic law and periodic table of elements.

1884 Germany

George Cantor (A) Development of set theory, the basis of modern mathematics.

1884 Sweden

Svante Arrhenius (A) Concept of Ionisation of solutions.

1887 Germany

Heinrich Hertz (A) Electrical magnetic waves (Hertzian or radio) travelling at the velocity of light.

1895 Germany

William Roentgen (A) Short wave ray (X-ray).

1896 France

Antoine Becquerel (A) Discovery of radio activity in uranium.

1897 England

Joseph Thomson (A) Discovery of the electron.

1900 Germany

Max Planck (A) The quantum theory.

1903 England

Ernest Rutherford (A) Nature of radio active disintegration - emission of X and Y rays.

1903 Russia

K. E. Tsiolkovosky (A) Formulation of the fundamental principle of rocket flights.

1905—16 Germany

Albert Einstein (A) General and special theories of realtivity.

1913 Denmark

Niels H. D. Bohr (A) Formulation of the concept of the planetary atom.

1913 England

Henry G. J. Mosly (A) Establishment of the concept of atomic number.

1924—26

Whitehead (English), **Louis V. de Broglie** (France), and **Erwin Schroedinger** (Germany) (A) Formulation of wave mechanics in atomic theory.

1925 Germany

Werner Heisenberg (A) Formulation of quantum mechanics in atomic theory.

1926 Russia

Ivan Petrovich Pavlov (A) Conditioned reflexes.

1931 Germany

Wolfgang Pauli (A). Postulation of existence of the neutrino—almost a quarter century before it was directly observed (1955).

1932 England

James Chadwick (A). Discovery of the neutron.

1932 America

Carl D. Anderson (A). Discovery of the positron.

1934 America

Enrico Fermi. American (b. Italy) Neutron bombardment of uranium, leading to the production of transuranium elements.

1938

Lise Meitner (Austrian Swedish), Otto Hahn (German) and Fritz Strassmann (German). First nuclear fission or uranium.

1945 America

J. Robert Oppenheimer and Others. Explosion of first atomic bomb.

1947 America

Willard F. Libby. Development of (atomic time clock), a method for determining geological age by measuring the amount of radio active carbon-14 in an organic or carbon-containing object.

1948 America

John Bardeen Walter H and Brattain William Shockley, Formulation of theory of the transistor and its construction.

1951 America

Atomic Energy Commission. Explosion of first nuclear fusion (hydrogen) bomb.

1954 America

Charles H. Townes. Construction of first Maser.

1955 America

Emilo G. Segre. American (b Italy) **Owen Chamberlain** (American). Production and the detection of the subatomic particles, the antiproton.

1957 Russia

USSR Academy of Science. First man-made satellite put into orbit around the Earth.

1958 America

James A. Van Allen Discovery of belts of high energy radiation surrounding the Earth.

1960 America

Theodore H. Maiman. First demonstration of Laser action.

1962

Francis H. C. Crick (Britain), **James D. Watson** (America) and **Maurice H. F. Wilkins** (Britain). Discovery of the structure of the DNA.

1963 America

Thomas A. Mathews and Allan R Sandage. Discovery of quasars

1967 America

David Harker and Others. Deciphering the structure of ribonuclease (RNA)

1968 America

R. Bruce Merrifield **and Others.** Synthesizing of ribonuclease molecule.

1968 England

Antony Hewish (Cambridge) Identification of Pulsars.

1970 America

Har Govind Khorana. (Indian born American) Synthesis of gene.

II

INVENTIONS AND DISCOVERIES

Science has transformed the world by its inventions and discoveries. Few inventions or discoveries, however, have been made at one stroke or by one man alone. The *Eureka* of Archimedes, is one among the few exceptions, that prove the rule

Every invention or discovery has a long history behind it- a history of continuous attempts, by countless persons in different countries and at different times. The scanty data that earlier generation had gathered, the crude models and rough designs that they had left behind them have made the path of invention easy for later generations. Those who have become known as inventors or discoverers are people, who have capitalised on the little bits of information that had accumulated in the past and have thus earned names for themselves

The list given below is of such inventions as have become prototypes of modern finished products. The dates are approximate.

Invention/Discovery	*Date*	*Inventor/Discoverer*	*Country*
Acetylene gas	1892	Wilson	USA
Adding machine	1642	Pascal	France
Airbrake	1868	Westinghouse	USA
Air Conditioning	1911	Carrier	USA
Airplane (Jet engine)	1930	Whittle	Britain
Airplane with motor	1903	Orville and Wilbur Wright	USA
Air Pump	1650	Von Guerick	Germany
Airship	1852	Giffard	France
Airship (non-rigid dirigible)	1900	Zeppelin	Germany
Aluminium, electrolytic process	1886	Hall	USA
Aniline dye†	1856	Perkin	England
Aqualung	1943	Cousteau	France
Autogyro	1920	de la Cierva	Spain
Automatic motors	1904	Westinghouse	USA
Automobile, differential gear	1885	Benz	Germany
Automobile, gasoline	1887	Daimler	Germany
Automobile, magneto	1899	Daimler	Germany
Automobile, self-starter	1911	Kettering	USA
Bakelite	1907	Baekeland	Belgium
Balloon	1783	Montgolfier Brothers	France
Balance Spring	1675	Huygens	Holland
Ball bearing	1794	Vaughan	England
Balance Spring (Watch)	1658	Robert Hooke	England
Barometer	1643	Torricelli	Italy
Bicycle, modern	1884	Starley	England
Bicycle, safety	1886	Pope	USA
Bifocal lens	1780	Franklin	USA
Bleaching powder	1798	Tennant	England
Bottle Machine	1903	Owens	USA
Bordeaux Mixture	1885	Millardet	France
Braille Printing	1829	Braille	France
Burner-gas	1855	Bunsen	Germany
Canning	1820	Durand	England
Camera, Polaroid lens	1948	Land	USA
Carburettor gasoline	1876	Daimler	Germany
Carding machine	1797	Whittemore	USA
Cellophane	1900	Brandenberger	Switzerland
Celluloid	1870	Hyatt	USA
Cement, Portland	1845	Aspdin	England
Chronometer	1761	Harrison	England
Cinematograph	1895	Lumiere Brothers	France
Clock pendulum	1657	Huygens	Holland
Coaxial cable system	1929	Affel & Espensched	USA
Computer (original model)	1823	Babbage	England
Computer (electronic)	1946	Eckert Manchly	England
Condenser microphone (telephone)	1920	Wente	USA
Cotton gin	1793	Whitney	USA
Cream separator	1880	De Laval	Sweden
Cultivator, disc	1878	Mallon	USA
Deuterium (heavy hydrogen)	1932	Urey, Brickwede Murphy	USA
DDT	1874	Zeidler	Germany
Diesel engine	1895	Diesel	Germany
Dynamite	1866	Nobel	Sweden
Dynamo	1831	Faraday	England
Electric battery	1800	Volta	Italy

So-called after the natural dye indigo, which the Portuguese called anil.

Electromagnet	1824	Sturgeon	England
Electroplating	1805	Brugnatelli	Italy
Electrolysis	1852	Faraday	England
Elevator, push button (Lift)	1922	Larson	USA
Elevator brake ,,	1852	Otis Watson Wilkins	USA USA England
Engine, gasoline	1886	Daimler	Germany
Engine, gas vacuum	1823	Brown	England
Engine, steam piston	1705	Newcomen	England
Engine, automobile	1879	Benz	Germany
Engine, jet	1939	Von Ohain	Germany
Engine, jet	1941	Frank Whittle	England
Engraving halftone	1893	Ives	USA
Filament, tungsten	1915	Langmuir	USA
Food preservation	1809	Apert	France
Galvanometer	1820	Sweigger	Germany
Gas lighting	1792	Murdoch	Scotland
Gas mantle	1885	Welsbach	Austria
Geiger counter	1913	Geiger	Germany
Gold (cyanide process for extraction)	1887	Forest	Britain
Gun, Breechloader	1811	Thornton	USA
Gun, Browning	1916	Browning	USA
Gun, silencer	1909	Maxim, H. P.	USA
Gyroscope	1852	Foucault	France
Gyrocompass	1911	Sperry	USA
Harvester	1836	Moore	USA
Helicopter	1907	Cornce	France
Hovercraft	1959	Cockerall	England
Hydraulic jack	1795	Brahm	England
Ice making machine	1851	Govil	USA
Indigo (synthesis)	1880	Baeyer	Germany
Kaleidoscope	1817	Brewster	England
Kinetoscope	1887	Edison	USA
Lamp, arc	1879	Brush	USA
Lamp, incandescent	1879	Edison	USA
Lamp incand. gas	1916	Langmuir	USA
Lamp, mercury vapour	1912	Hewitt	USA
Lamp, miner's safety	1816	Davy	England
Lamp, Neon	1915	Claude	France
Lathe, (turret)	1845	Fitch	USA
Launderette	1934	Cantrell	USA
Leyden Jar	1746	Bevis	England
Leyden Jar (condenser)	1745	Von Kleist	Germany
Lightning rod	1752	Franklin	USA
Linoleum	1860	Walton	England
Linotype	1885	Mergenthaler	USA
Lithography	1796	Senefelder	Bohemia
Lifeboat	1790	Greathead	England
Locomotive (electric)	1851	Vail	USA
Locomotive (practical)	1829	Stephenson	England
Loom, power	1785	Cartwright	England
Loudspeaker, dynamic	1924	Rice-Kellogg	USA
Machine gun	1861	Gatling	USA
Machine gun (Maxim)	1883	Maxim H. S.	England
Magnet, electro	1828	Henry	USA
Magnetic Needle	11th Century	—	China
Gun sight, telescope	1891	Fiske	USA
Mason Jar	1858	Mason, J.	USA
Match (friction)	1827	John Walker	England

Match (phosphorus)	1831	Sauria	France
Match (sulphur)	1830	Jones	England
Mercerized textiles	1843	Mercer, J.	England
Microphone	1877	Berliner	USA
Microscope, compound	1590	Janssen	Holland
Microscope, electron	1931	Knoll-Ruska	Germany
Milk condensation	1853	Borden	USA
Microwave cooking	1940	Randalls Boot	England
Monotype	1887	Lanston	USA
Motor AC	1892	Tesla	USA
Motor, rotary	1907	Ocenasek	Czechoslovakia
Motorcycle	1885	Daimler	Germany
Movie (talking)	1927	Warner Bros.	USA
Mower, lawn	1868	Hills	USA
Nitroglycerin	1846	Sobrero	Italy
Nylon synthetic	1930	Carothers	USA
Nylon	1937	Du Pont (lab)	USA
Paper machine	1809	Dickinson	USA
Parachute	1785	Blanchard	France
Paper (from wood pulp)	1884	Dahl	Germany
Pen, ballpoint	1888	Loud	USA
Pen, fountain	1884	Waterman	USA
Phonograph	1877	Edison	USA
Photo, colour	1892	Ives	USA
Photo, film celluloid	1887	Goodwin	USA
Photo, film transparent	1888	Eastman-Goodwin	USA
Photographic paper	1898	Baekeland	USA
Photography	1826	Niepce, Sr.	France
Photophone	1880	Bell	USA
Photo telegraphy	1925	Bell lab	USA
Piano	1709	Cristofori	Italy
Pin, safety	1849	Hunt	USA
Piston-cylinder system	1690	Papin	France
Plywood	1830	Immanuel Nobel†	Sweden
Printing, colour	1457	P. Schoeffler	Germany
Printing press rotary	1846	Hoe	USA
Pressure cooker (Steam digester)	1679	Denis Papin Robert Boyle, J.	France England
Radio valve	1904	Fleming	England
Radio broadcaster	1902	Stubblefield	USA
Radio signals	1895	Marconi	Italy
Radio activity	1896	Becquerel	France
Radium	1898	Curie, Pierre Curie, Marie	France Poland
Rayon	1883	Swan	England
Razor, electric	1931	Schick	USA
Razor, saftey	1895	Gillete	USA
Reaper	1834	McCormick	USA
Record, disc	1887	Berliner	USA
Record wax cylinder	1888	Edison	USA
Refrigeration	1834	Perkins	USA
Resin, synthetic	1931	Hill	England
Rocket engine	1929	R. H. Goddard	USA
Rotary engine	1926	Wankel	Germany
Saw, band	1808	Newberry	England
Saw, circular	1777	Miller	England
Screw-cutting lathe	1569	Besson	England
Sextant	1757	Compell	England

Father of Alfred Nobel.

Sewing machine	1846	Howe	USA
Shuttle, flying	1733	Kay	England
Soap (hard water)	1928	Bertsch	Germany
Spinning Jenny	1767	Hargreaves	England
Sleeping car	1858	Pullman	USA
Steam boat, practical	1802	Symington	Scotland
Steam boat, practical	1807	Fulton	USA
Steam engine	1712	Newcomen	England
Steam engine (improved)	...	James Watt	England
Steamship (complete)	1843	Great Britain (Name of ship)	England
Steam turbine	1884	Parsons	England
Steel (mild)	1856	Bessemer	England
Steel	1857	Kelly	USA
Steel alloy	1891	Harvey	USA
Steel alloy, high speed	1901	Taylor-White	USA
Steel, stainless	1916	Brearley	England
Submarine	1891	Holland	USA
Submarine, torpedo	1776	Bushnell	USA
Tank, military	1914	Swinton	England
Telegraph wireless, high frequency	1896	Marconi	Italy
Telegraph	1837	Cooke & Wheatstone	England
Telegraph code	1837	Morse	USA
Telephone	1876	Bell	USA
Telephone, automatic	1891	Strowger	USA
Telephone, radio	1902	Poulsen and Essenden	USA
Telescope	1608	Lippershey	Netherlands
Telescope	1609	Galileo	Italy
Television	1926	Baird	Scotland
Thermometer	1593	Galileo	Italy
Thermometer	1710	Reaumur	France
Thermometer (Mercury)	1714	Fahrenheit	Germany
Torpedo	1866	Whitehead	England
Torpedo, marine	1804	Fulton	USA
Tractor, caterpillar	1900	Holt	USA
Transformer	1831	Faraday	England
Transistor	1947	Shockley. Brattain, Bardeen	USA
Tungsten (drawn) filament lamp	1913	Coolidge	USA
Turbine gas	1899	C. G. Curtis	USA
Turbine, hydraulic	1849	Francis	USA
Turbine, steam	1896	C. G. Curtis	USA
Tyre, bicycle	1889	Dunlop	Ireland
Tyre, pneumatic	1888	Dunlop	Ireland
Type, movable	1850	Gutenberg	Germany
Typewriter	1868	Sholes	USA
Universal joint	1676	Hooke	England
Vacuum flask	1892	Dewar	England
Vulcanisation	1884	Goodyear	USA
Weaving Machine	1733	Kay	England
Welding, electric	1877	Thomson	USA
Wind tunnel	1923	Munk	USA
Wire, barbed	1874	Glidden	USA
X-ray tube	1916	Coolidge	USA
Zip fastener	1913	Sundback	Sweden

III

Elements and their Discoverers

Element and Symbol		*Atomic Number*	*Atomic Weight*	*Discoverer*	*Date*
Actinium	(Ac)	89	227.0	A. Debierne	(1899)
Aluminium	(Al)	13	27.0	F. Wohler	(1827)
Americium	(Am)	95	(243)	G. Seaborg et al	(1944)
Antimony	(Sb)	51	121.8	B. Valentine	(1604)
Argon	(A)	18	39.9	W. Ramsay and J. Rayleigh	(1894)
Arsenic	(As)	33	74.9	A. Magnus	(?)(1250)
Astatine	(At)	85	(210)	E. Segre et al	(1940)
Barium	(Ba)	56	137.3	H. Davy	(1808)
Berkelium	(Bk)	97	(249)	S. Thompson et al	(1949)
Beryllium	(Be)	4	9.0	N. Vauquelin	(1798)
Bismuth	(Bi)	83	209.0	C. Geoffrey the Younger	(1953)
Boron	(B)	5	10.8	H. Davy	(1808)
Bromine	(Br)	35	79.9	A. Balard	(1826)
Cadmium	(Cd)	48	112.4	F. Stromeyer	(1817)
Calcium	(Ca)	20	40.1	H. Davy	(1808)
Californium	(Cf)	98	(251)	S. Thompson et al	(1950)
Carbon	(C)	6	12.0	...	Prehistoric
Cerium	(Ce)	58	140.1	J. Berzelius and W d' Hislinger	(1803)
Cesium	(Cs)	55	132 9	R. Bunsen and G. Kirchhoff	(1860)
Chlorine	(Cl)	17	35.5	K. Scheele	(1774)
Chromium	(Cr)	24	52.0	N. Vauquelin	(1797)
Cobalt	(Co)	27	58.9	G. Brandt	(c. 1735)
Copper	(Cu)	29	63.5	...	Prehistoric
Curium	(Cm)	96	(248)	G. Seaborg et al	(1944)
Dysprosium	(Dy)	66	162.5	L. de Boisbaudran	(1886)
Einsteinium	(E)	99	(254)	A. Ghiorso et al	(1953)
Erbium	(Er)	68	167.3	C. Mosander	(1843)
Europium	(Eu)	63	152 0	E. Demarcay	(1896)
Fermium	(Fm)	100	(253)	A. Ghiorso et al	(1952)
Fluorine	(F)	9	19.0	H. Moissan	(1886)
Francium	(Fr)	87	(223)	M. Perey	(1939)
Gadolinium	(Gd)	64	157.3	J. C. de Marignac	(1880)
Gallium	(Ga)	31	69 7	L. de Boisbaudran	(1875)
Germanium	(Ge)	32	72.6	C. Winkler	(1886)
Gold	(Au)	79	197.0	..	Prehistoric
Hafnium	(Hf)	72	178·5	D. Coster and G. de Hevesy	(1923)
Helium	(He)	2	4.0	J.C.P. Janssen and N. Lockyer	(1868)
Holmium	(Ho)	67	164.9	J. Soret and M. Delafontai	(1878)
Hydrogen	(H)	1	1.0	H. Cavendish	(1766)
Indium	(In)	49	114.8	F. Reich and T. Richter	(1863)
Iodine	(I)	53	126.9	B. Courtois	(1811)
Iridium	(Ir)	77	192.2	S. Tennant	(1803)
Iron	(Fe)	26	55.9	...	Prehistoric
Krypton	(Kr)	36	83.8	W. Ramsay and M. Travers	(1898)
Lanthanum	(La)	57	138.9	C. Mosanter	(1839)
Lawrencium	(Lr)	103	257.0	A. Ghiorso et al	(1961)
Lead	(Pb)	82	207 2	...	Prehistoric
Lithium	(Li)	3	6,9	A. Arfvedson	(1817)
Lutetium	(Lu)	71	175.0	G. Urbain	(1907)
Magnesium	(Mg)	12	24.3	Recognized by J. Block	(1755)
Manganese	(Mn)	25	54.9	Recognized by K. Scheele	(1774)
Mendelevium	(Mv)	101	(256)	A. Ghiorso et al	(1955)
Mercury	(Hg)	80	200.6	..	Prehistoric
Molybdenum	(Mo)	42	95 9	K. Scheele	(1778)
Neodymium	(Nd)	60	144.2	C. von Welsbach	(1885)
Neon	(Ne)	10	20.2	W. Ramsay and M. Travers	(1898)

Neptunium	(Np)	93	(237)	E. Mc Millan and P. Abelson	(1940)
Nickel	(Ni)	28	58.7	A. Cronstedt	(1751)
Niobium (Columbium)	(Nb)	41	92.9	C. Hatchett	(1801)
Nitrogen	(N)	7	14.0	D. Rutherford	(1772)
Nobelium	(No)	102	(254)	Fields et al	(1951)
Osmium	(Os)	76	190.2	S. Tennant	(1803)
Phosphorus	(P)	15	31.0	H. Brand	(1669)
Platinum	(Pt)	78	195.1	D. de Ulloa	(1735)
Plutonium	(Pu)	94	(242)	G. Seaborg et al	(1940)
Polonium	(Po)	84	210.0	P. and M. Curie	(1898)
Potassium	(K)	19	39.1	H. Davy	(1807)
Praseodymium	(Pr)	59	140.9	C. von Welsbach	(1885)
Promethium	(Pm)	61	(147)	J. Marnsky et al	(1947)
Protactinium	(Pa)	91	231.0	F. Soddy et al	(1917)
Radium	(Ra)	88	226.1	P. and M. Curie	(1898)
Radon	(Rn)	86	222.0	E. Rutherford (thoron isotope)	(1899)
				E. Dorn (radon isotope)	(1900)
Rhenium	(Re)	75	186.2	W. Noddack et al	(1925)
Rhodium	(Rh)	45	102.9	W. Wollaston	(1803)
Rubidium	(Rb)	37	85.5	R. Bunsen and G. Kirchhoff	(1861)
Ruthenium	(Ru)	44	101.1	K. Claus (or Klaus)	(1844)
Samarium	(Sm)	62	150.4	L. de Boisbaudran	(1879)
Scandium	(Sc)	24	45.0	L. Nilson	(1879)
Selenium	(Se)	34	79.0	J. Berzelium	(1817)
Silicon	(Si)	14	28.1	J. Berzelium	(1824
Silver	(Ag)	47	107.9	...	Prehistoric
Sodium	(Na)	11	23.0	H. Davy	(1807)
Strontium	(Sr)	38	87.6	H. Davy	(1808)
Sulphur	(S)	16	32.1	...	Prehistoric
Tantalum	(Ta)	73	181.0	A. Ekeberg	(1802
Technetium	(Tc)	43	(99)	E. Segre and C. Perrier	(1937
Tellurium	(Te)	52	127.6	M. von Reichenstein	(1782
Terbium	(Tb)	65	158.9	C. Mosander	(1843
Thallium	(Tl)	81	204.4	W. Crookes	(1861
Thorium	(Th)	90	232.0	J. Berzelium	(1828
Thulium	(Tm)	69	168.9	P. Cleve	(1879
Tin	(Sn)	50	118.7	...	Prehistoric
Titanium	(Ti)	22	47.9	W. George	(1791
Tungsten(Wolfram)	(W)	74	183.9	G. and F. d'Ethuyar	(1783
Uranium	(U)	92	238.0	E. M. Peligot	(1841
Vanadium	(V)	23	51.0	A. Delrio	(1801
Xenon	(Xe)	54	131.3	W. Ramsay and M. Travers	(1898
Ytterbium	(Yb)	70	173.0	C. Marignac	(1878
Yttrium	(Y)	39	88.9	J. Gabolin	(1794
Zinc	(Zn)	30	65.4	...	Prehistoric
Zirconium	(Zr)	40	91.2	M. Klaproth	(1789

Element 104*. In 1969, the Russian scientists at Dubna announced that they had succeeded in synthesising element 104 which they named *Kurchatovium* in honour of physicist, I. V. Kurchatov. American scientists at Berkeley synthesised element 104 by a different method and challenged the Russian finding, naming their discovery *Rutherfordium* in honour of Lord Rutherford.

Element 105. In 1970, element 105 was produced by bombarding a minute target of Californium (98) with a beam of high-energy Nitrogen-15 nuclei. When the nitrogen-15 nuclei was absorbed by Californium, four neutrons were emitted and a new atom was found. It was named *Hahnium*, after the German scientist, Otto Hahn.

Both these elements were discovered by a team of scientists led by Albert Ghiorso, at the Lawrence Radation Laboratory of the University of California.

The official names of these elements have to be announced by the International Union for Pure and Applied Chemistry.

---

*Source: *Scientific American*, June, 1970.

Element 106† Tass reported on July 31, 1974 that Soviet scientists at Dubna, have synthesised a new element 106–the scientists bombarded lead nucleus with accelerated ions of Chromium 54 to produce the new element, which divided in radio-active decay in less than one-hundredth of a second.

Physicists at Dubna near Moscow are leaders in world research aimed at discovery of new transuranium elements. In the United States the principal work in this field is carried on at the University of California.

---

† News report A.P.

MILESTONES OF MEDICINE

Ancient Medical Systems

All ancient civilizations, developed their own systems of Medicine—Egypt, Babylon, India and China. Egypt seems to have been the first and the best in the field. It had a fully developed medical system by the third millineum BC.

We know very little of the Babylonian system and much less almost nothing of the Indus Valley System. The Indian system, we know it starts with the Rigveda (2000 BC). The earliest known medical treatise in China, appeared in the 5th cent. BC, say around 450 BC.

Egyptian System

The Egyptian system, like all other ancient systems, laboured under a heavy load of superstition and magic. Yet it developed many cures, that have stood the test of time. Pain-killing drugs and sedatives were well known to the Egyptians. Queen Neferetti is portrayed in a bass relief, as administering a pain-killing drug, to her ailing husband, the Pharaoh. Henbane, a herb, which is known to us as a sedative source was originally used by the Egyptians, as such. Onion, as a cure for scurvy and also as a cure for intestinal disorders are old Egyptian prescriptions.

Chinese System

The Chinese system, must have been many centuries old when the first great medical treatise appeared in China around 450 BC. This treatise, unlike the Indian *Rigveda* and the later *Atharva veda* is an elaborate treatise on medicine, comparable to the *Susruta Samhita* or the *Charaka Samhita* of India. It included among others, detailed descriptions of *acupuncture** which has received international publicity during recent times. Between 600 and 900 AD, the Chinese system of medicine, known as Han-Yi had spread to Korea and Japan and much of south east Asia.

Ancient China had developed many cures, some of which have come down to modern times. Ephedra, a herb, which soothes coughs was known to the Chinese, 4,000 years ago. Rhubarb as a laxative was first used in China. Pumpkin seeds, another Chinese contribution, is a well known worm-ridder. It is now found to be effective against snail fever also.

Graeco-Roman System

The Graeco-Roman system was almost entirely derived from the Egyptian system. Most of its cures are of Egyptian origin. To the Greeks, we owe the first revolutionary change in medical practice the liberation of medicine from superstition and magic Hippocrates, a Greek physician known as the Father of Medicine in the west, condemned the use of charms and chants in medicine. He laid down a code of conduct for medical practitioners. Scientific therapy started with Hippocrates.

Arab System

The Arabs revolutionised the science of medicine by effecting a synthesis of Indian medical system and the Gracco-Roman system They passed on this knowledge to Europe. The influence of Arabic medicine on Europe was widespread and longstanding. The Qunun (Canon) written by the Arab scholar Avicenna (11th cent. AD) became the primary text of medical studies in Europe and continued to be so as late as the 17th century.

Unani System

Under the Mugal Emperors, Arab medicine came to India. It took root in India, under the name of *Unani*. mainly because there was so much common between the old Indian system and the new Unani system. The term *Unani* is derived from the Sanskrit *Yavana* meaning Greek. The Unani system continues to this day in India.

Indian System

The Indian System known as *Ayurveda* originated as far back as 200 B C. *Ayurveda* is a compound word in Sanskrit, meaning literally, *the Science of Life*. Actually, it implies two connected ideas-the science of life and the art of living.

Ayurveda, unlike allopathy or homeopathy, does not swear by any particular principle of cure, Ayurvedic treatment covers all the principles of allopathy, homeopathy and naturopathy. "Thus" says Pandit Shiv Sharma, President of the Central Council of Indian medicine, "the homeopathic opium, which cures constipation and the allopathic opium which causes it, both fall within the Ayurvedic therapeutic measures".

---

* See Box, pp. 750

According to Ayurveda, "there are three basic constituent complexes in the physiological system called *doshas*. They are *Vayu* or *Vata*, *Pitta* and *Kapham* or *Sleshma*. These terms, though literally they mean *wind*, *bile* and *phlegm* respectively, embrace much more. Between them, they sustain the whole body metabolism.

Good health implies an ideal balance between three doshic factors. No true mono-*doshic* individual exists. It is the predominance of any particular *dosha*, which marks the constitutional types of men. On this basis, humans are divided into three psychosomatic types, namely the *Vata-prakriti, the pitta-prakriti* and the *kapha-prakriti*

The ayurvedic physician has to evaluate the *doshic* picture of the patient and find out, what type of *tridosha* predominates and to set right the imbalance by prescribing drugs, diets and practices.

Acupuncture or Needle Therapy

Acupuncture is now in the news. Many hail it as a unique Chinese contribution to medical science. Others are sceptical.

Acupuncture was known and practised in China from very ancient times. Acupuncture therapy, first occurred to the Chinese, when they discovered that pain in one part of the body disappeared, when another part suffered pain. The Chinese identified such co-related parts of the body. They have discovered nearly 1000 points in the body which are related to other parts of the body in this way.

Acupuncture, is now more famous as an anaesthetic, than as a cure. The Chinese doctors argued that if a pain in the throat for example, could be cured by puncturing a point in the hand, it would be possible to operate on the throat painlessly by puncturing the hand in the particular place. They attempted such operations in the last two decades and found that in 90 per cent of the cases, acupuncture anaesthesia was successful.

The advantage of acupuncture anaesthesia is that the patient remains conscious all through and can co operate with the surgeon during the operation. The patient can leave the theatre, with full consciousness and without pain. His normal physiological functions will continue undisturbed.

Western System

The Western system of medicine was later named Allopathy by Hahnemann to distinguish it from his own system Homeopathy. Allo from the Greek word alos, means other or another, and implies the treatment of diseases by othe drugs, that is, drugs having effects opposed to the symptoms. Homeo, from Greek word Homos, * means treatment by drug having the same effects as the symptom of disease. In other words, homeopath (literally, similar, suffering) is based on the principle "like cures like" while allopathy is based on the principle tha opposites cure opposites.

I. Ancient Medicine

3000 —2000 BC Egypt

I am-hotep or Imhotep (he who comes i peace) circa 2980 B C is the legendary founder of Egyptian medicine. It was later deified as the god of medicine. Around 2500 B C we find evidence of surgical operations in Egyp By 2000 B C Egypt had a highl developed system of medicine. The embalmed their dead, and prepare drugs to combat diseases, an essences to improve health.

2000—1000 B C India

Rigveda (2000 BC) marks the beginning o the Indian system of medicine. Ayurveda, is said to be founded by th sage Atreya. Medicine was considere part of the Vedas or scriptures. Rigved contains two basic concepts of Ayurveda— the concept of *tridathu* †(three bodily humours) and the idea of rejuvenation of the aging body.

---

* Homeo is derived from the Geek word homos meaning 'the same' not the Latin word homo meaning 'man'.

† According to Pandit Shiva Sharma. President of the Central Council of Indian medicine, *tridathu* and *tridosha* can be regarded as synonymous. They indicate "three basic constituent complexes in the physiological system".

Athrvaveda (1000 B C.) Mentions the twin aims of medical science as health and longevity and curative treatment. The concept of *tridathu* is amplified. Vayu, Pitha, Kapha, regarded as the pathological conditions (thridosha) of tridathu. Hygiene and dietetics are considered important in treatment. Beneficial effects of milk are described in detail.

800 —500 B C India

Bhela Samhita·A codification of medical knowledge scattered through the Vedas (800 B C).

Agnivesa Samhita. A codification by Agnivesa, said to be a disciple of Atreya the basis of the latter Charaka Samhita (700 B C).

Kasyapa Samhita. A treatise by Kasyapa mainly dealing with paediatrics (600 BC).

Chivaravastu (author or authors unknown) mentions Prince Jivika, the court physician of Bimbisara, King of Magadha as a marvellous physician and surgeon. He is credited with such difficult operations as piercing the skull to operate on the brain, surgery of the eyes etc. and medical treatment of dropsy, internal tumours and varicose veins (500 B C).

500 —200 B C Greece

Alcmaeon of Croton held that the brain was the central organ of sensation and intellcetual activity. (500 B C)

Hippocrates, father of western medicine-Beginning of experimental medicine-a rational conception of diseases as due to natural causes—minute observation and careful interpretation of symptoms- accurate description of many diseases and their treatment (460—370 B C).

China 5th Cent. B C

Huangdi Neiching (*T) Huangdi* (*A*) c. 450 B C. Treatise on Internal Medicine. The first book on medicine in China covering all that was known in medicine at that time, aetiopathology, diagnosis, prognosis and therapy.

C. 350 BC Alexandria

Herophilus, the first great human anatomist was also the greatest physician since Hippocrates. **Erasistratus,** a younger contemporary of Herophilus and Eudemus, practised human directions and made experiments on animals. This trio made Alexanderia, the most famous centre of medicine in the world.

200—100 B C India

Patanjali. Exposition of the yoga system of philosophy of mental and physical discipline—the starting point of yoga therapy of the later centuries. (c. 200 B C.)

Charaka Samhita. The first classical exposition of Indian medicine—deals with almost all branches of medicine -anatomy, physiology, aetiology* prognosis (prediction of the course of a disease), pathology and treatment, procedure and sequence of medication—an extensive materia medica of more than 600 drugs. This treatise formed the basis of the Atreya school of medicine in India (c. A D 100)

A D 100—200 Rome

Celsus. A treatise on medicine and surgery as it obtained in Alexandria and Rome (c. A D 100)

Galen. (A D 131-201) The greatest figure in western medicine since Hippocrates systematised Greek anatomical and medical knowledge and united the divided schools of Graeco—Roman medicine. He dissected animals and human bodies and discovered many new facts in anatomy and physiology. Galen's ideas ruled medical science in Europe till the 16th century.

A D 200-300 India

Susruta Samhita, as redacted by Nagarjuna. (The original samhita is much older but is not traceable). Another great treatise on Ayurveda, like the Charaka Samhita-Susruta is described as a disciple of Dhanwantari, a sage of remote antiquity. The original Samhita appears to have been revised and considerable additions made by Nagarjuna. The emphasis is on surgery.

It describes more than 300 operations, 43 different surgical processes and 121 different types of instruments. The materia medica is also extensive, covering more than 650 drugs of animal, plant and mineral origin. The Rasachikitsa system (treatment by mercury) of later days is anticipated and recognised in this Samhita. This treatise forms the basis of Dhanwantari school (A D 300)

A D 500-600 India

Ashtangahridaya by Vagbhata is the most concise and scientific exposition of Ayurvedic knowledge. It is in verse-form, making it easy to memorise.

---

* The branch of pathology, which deals with the causes of disease.

It incorporates the teachings of the Atreya, Dhanwantari and Rasayana (rejuvenation) schools of medicine and is distinguished by its knowledge of chemical reactions and laboratory process (c. A D 550)

Gadanigraha, a medical treatise and *Sodhalanighantu,* a medical lexicon, both by *Sodhala* (A D 700)

Siddhayoga by Vrudakunta is the earliest extant treatise on the Rasachikitsa (mercury treatment) system. This system employs only metals, alloys, metallic compounds and salts and sulphur and its preparations in its materia medica. This school of medicine called the *Siddha School* is supposed to be a continuation of the pre-Aryan medical system in India. It is popular in southern and eastern India (c. A D 750)

A D 700-800 India

Madhava Nidana by **Madhavacharya,** is a compilation from the earlier works of Agnivesa, Charaka, Susruta and Vagbhata It is specially useful as a chemical guide. It is famous all over India as the best Ayurvedic work on the diagnosis of diseases (A D 800)

II. MEDIAEVAL MEDICINE

A D 800-1300 Middle East

Translation of Indian Medical classics into Arabic-Susruta samhita as Kilal-Samural-Lind i of Susrud, Charaka Samhita as Sarag, Ashtangahridaya as Astanker and Madhava Nidana as Badan. (A D 800—900).

Ali b. Rabban compiles *Firdausi Hikmat* (Paradise of Wisdom) a synthesis of Greek and Indian medicine (A D 850)

Abu Ali Husain b. Abdulla, better known as *Avicenna* published 16 medical books in Arabic, the chief of which is *Qanun* (canon)· Avicenna represents the high watermark of Arabic medical knowledge. His Qanun became the text book of medical study in Europe and continued in use as late as 1650 (A D 980-1036)

A D 800-1300 India

A number of treatises were written in India during this period· *Arkaprakasha* a book on tincture extraction, *Sarngadhara Samhitha Chikitsa Samgraha* and *Yogaratnakara* are the better known among them. This period also witnessed a spurt of writing on the *Rasachikitsa* system *Rasaratnakara by Siddhanta* is compendium in 5 volumes. *Rasasara, Rasahridayatantra, Rasendrasara Samgraham* and *Dhaturatnamala* are the major works of this system.

A D 1300—1600 Europe

Mondino (Italy) publishes *Anatomia,* the first book on Anatomy (1316)

Paracelsus, (1493-1541) a Swiss doctor was the first to break away from the Galenic school. He popularised the use of chemical drugs to cure diseases—the beginning of chemotherapy.

Andreas Vesalius, (1515-1564) an independent investigator published *De Humanis Corporis Fabrica* (1543), the first proper book on anatomy based on his own observations.

A. D. 1300—1600 India

Bhavaprakasha by **Bhavamisra,** the most renowned Indian treatise during this period contains an exhaustive list of diseases and their symptoms and a complete list of drugs, including many not mentioned in the earlier works. It includes the aetiology and treatment of syphillis, a disease brought by Portuguese seamen into India. Some other known works are *Chikitsalika* by Trisata, *chintamani* by **Ballabhendra** and *Vaidyamrita* by Moreswara. Another class of works during this period were medical lexicons by Madanapala, Nagahari Bimapala and Rajavallabha,

III MODERN MEDICINE

1600—1700 Europe

William Harvey (1578 1657) discovers circulation of blood His book *Ectiato Anatimica de Mota Cordis et Sanguines* was published in 1628.

Jan Baptista Van Helment (c. 1648) founds biochemistry He invented the name 'gas' for airy elements.

Marcello Malpigi (c. 1661) discovers capillaries as the connecting links between veins and arteries.

Borelli (c. 1670) explains the mechanics of breathing and muscular contraction.

1600—1700 Europe

Richard Lower publishes *Tractus de Corde* (1699) showing that blood changed its colour from dark purple to bright red in the lungs.

Loenwenhock discovers bacteria under the microscope (1683)

J. F. Gall (1758-1828) demonstrates the real structure of the brain as the centre of the nervous system—beginning of the science of neurology.

Edward Jenner—first successful vaccination.

Marie Bichat (1771-1802)-the study of tissues—founding of histology.

1800—1900 Europe & America

Kirchhoff discovers catalyic process (1812).

Laennec (France) invents the Stethoscope (1819).

William Beaumount (America) establishes the function of pancreatic juice, expounds the work of liver and discovers vaso-motor nerves (1822).

Karl Ernest Van Baer (1792-1896) founding of the study of embryology.

Cagniard de Latoar identifies fermenting agent (1838).

Schwann independently discovers the same agent. (1838).

Mathias, Schbiden and Schwana explain cells as units of life—founding of cytology (study of cells) (1838-39).

Crawford Long (America)—use of ether as an anaesthetic during surgery (1842).

James Simpson (Britain) use of chloroform as an anaesthestic (1847).

Louis Pasteur—microbes, cause of diseases—process of pasteurisation—discovers vaccines for anthrax and rabies (1860).

Joseph Lister—use of carbolic acid as an antiseptic for surgery (1865).

Ferdinand Cohn—founding of bacteriology (1872).

Hansen (Norway)—discovery of leprosy bacillus (1873).

Robert Koch—discovery of cholera, T. B. germs (1877).

Kuhne—names catalysts as enzymes (1878).

Edwin Klebs and Friedrich Loffeter—discovery of diphtheria germs (1883—84).

Laveran identifies malaria germs (1880).

Schiff discovers the function of the thyroid (1884).

Metschnikott discovers phagocytes, white corpuscles that fight infection (1884).

Rubner—determines heat-value (calories) of protein and carbohydrates (1885).

Dreser (German)—Aspirin (1889).

Dimitri Ivanovski—discovery of virus in tobacco mosaic—founding of the science of virology (1892).

Sigmund Freud—founding of psychoanalysis (1895).

Paul Ehrilich—founding of serology (1884-1915).

Behring and Kitasato—discovery of antitoxins—science of immunity (1890).

Schafer and Oliver (Britain) discover adrenaline, the first hormone to be discovered (1894).

1900 and after

Takamine (Japan)—isolation and analysis of the hormone adrenaline (1901).

Bayliss and Starling—discovery of hormones—founding of the science of endocrinology (1902).

Einthoven (Dutch)—Electro cardiograph (1903).

August Wasserman and others—development of specific test for syphillis (1906).

Sir F. G. Hopkins and Sir W. M. Fletcher—analysis of muscle contraction—breakdown of glycogen into lactic acid (1907).

J. Nicolle (France)—Typhus vaccine (1909).

Steinach—identification of sex hormones (1910).

Sir F. G. Hopkins—discovery of 'accessory food factors', later named vitamins (1912).

Holst, Froelich (Norway)—Vitamin C. (1912).

Mc Collum Davis (USA)—Vitamin A (1913).

Mc Collum Davis (USA)—Vitamin B (1916).

Landsteiner—Synthetic 'antigens' to produce antibodies to fight infection (1917).

Kendall—identification of thyroxin, thyroid gland secretion (1919).

Banting and Best—Insulin for diabetic theraphy (1922)

Mc Collum Davis (USA) Vitamin D (1922).

Collip—isolation of parathyroid hormone (1924).

George Minot and William Murphy—discovery of Vitamin B_1 (liver extract) for treatment of anaemia (1926).

Aschheim and Zonelek—discovery of oestrogen. female sex hormone (1927).

Philip Drinker and Louis Shaw—invention of the iron lung for artifical respiration (1928).

Alexander Fleming—discovery of pencillin (1928).

Dale and Dadley—extract from animal spleen, the hydrolysing enzyme—acetyle chlorine (1929).

Gerhard Domagk—first use of sulfa drugs in therapy (1932).

Karl Landsteiner—discovery of the Rh factor in blood (1940).

Salman Wakman—discovery of streptomycin (1943).

Hoffman (Swiss)—LSD (1943).

Kolf (Dutch)—Kidney Machine (1944).

Burkholder (USA)—Chloromycetin (1947)

Duggar (USA)—Aureomycin (1948)

Armour & Co (USA)—Synthetic ACTH (1949)

Philip Hench and others—use of cortisone in therapy (1949).

Jal Vakil (India)—Reserpine (1949).

Finlay & others (USA)—Terramycin (1950).

Walton Lillehel—open heart surgery (1953).

Jonas Salk—discovery of poliomyelitis vaccine (1954).

Enders, John (USA)—measles vaccine (1954).

Pincus (USA)—contraceptive pills (1955).

Michael de Bakey—first use of artificial heart during heart surgery (1963).

Christian Barnard first surgical transplant of the human heart (1967).

DIETETICS

Foodstuffs may be broadly classified as cereals, pulses, nuts and oil seeds, vegetable, fruits, milk and milk products, fish and eggs, meat, spices, condiments, beverages and sugar The foods contain nutrients which keep the body functioning. The main nutrients found in foodstuffs are classified as (1) Carbohydrates (2) Fats (3) Proteins (4) Minerals (5) Vitamins and (6) Water.

Proteins, fats and carbohydrates are sometimes called proximate principles. They are burnt (oxidised) by the body for its energy requirements.

Functions of Nutrient Groups

To supply heat energy and power	To build and promote growth	To renew body tissues	To regulate body processes
Carbohydrates	...	...	...
Fats	...	...	...
Proteins	Proteins Minerals Vitamins	Proteins Minerals Vitamins	Proteins Minerals Vitamins Water

Proteins (from the Greek word **Proteios**, meaning first) are the most versatile elements in the body. They are the chief substances of the cells of the body, they form important constituents of muscles and other tissues and vital fluids like blood, Enzymes, which assist in the digestion of food, and anti-bodies which are the body defences against infections are also mainly protein in nature.

Amino Acids. The nutritive value of protein depends on the essential amino acid composition. Amino acids are the bricks with which tissue protein is built and replaced. There are some 20 amino acids commonly found in dietary proteins. Of these, 10 amino acids can be synthesised by the body itself, whether by mutual conversion among amino acids or from non protein sources. But 10 amino acids cannot be so synthesised and have to be supplied through diet. These are called **essential amino acids.** Adults require 8 amino acids while children require 9 or 10.

Nutritive Value of Indian Foods

Foodstuffs	*Biological value*	*Protein efficiency ratio*
Rice	68	2.2
Wheat	65	1.5
Maize	59	1.2
Bengal gram	68	1.7
Red gram	57	1.5
Groundnut	55	1.7
Gingelly seeds	62	1.8
Egg	94	3.9
Milk	84	3.1
Meat	74	2.3
Fish	76	3.5

Protein Requirements under Indian Conditions

Man (weighing 55 kg)	55	gm/day
Woman („ 45 kg)	45	gm/day
„ Pregnant (II & III Trimester)	100	gm/day
„ Lactating	110	gm/day

Infants and Children

0 1 Year	3.5 gm	(per kg body-weight) per day
2- 5 Years	3.5	„
6- 7 „	3	„
8-15 „	2.5	„
16-20 „	2	„

Fat, like protein is a necessary ingredient in diet and is of value to the body in a number of ways. It is a concentrated source of energy and supplies per unit weight more than double the energy furnished by either protein or carbohydrates Some fats especially vegetable oils provide what are called essential fatty acids—linoleic, linolenic and arachidonic acids-to the body.

Cholestrol. The quantity and quality of fat consumed affects the level of cholestrol in the blood. Some fats like groundnut oil, sesame oil or safflower oil, which contain a high proportion of polyunsaturated fatty acids, do not increase blood cholestrol levels greatly. Others like butter, ghee, coconut oil and hydrogenated vegetable oils (vanaspathi) contain high proportions of Saturated fatty acids and greatly increase cholestrol levels. It is also found that consumption of smaller amounts of fat at different times, causes less increase of cholestrol than a large amount of fat at a time.

Carbohydrates

Carbohydrates include every kind of starch and sugar. Grain-foods are largely composed of starch, and foodstuffs like cane sugar and glucose are pure carbohydrates. They form the main source of energy for the boby Being a cheap source of energy, carbohydrates form the bulk of Indian diet.

Energy Requirements

Quantitative food requirements are usually estimated in terms of heat-units, calories. A physiological calorie (also called large calorie or Kilocalorie, (abbreviated as Kcal) is the amount of heat necessary to raise the temperature of one kilogram of water by one centigrade. One gram of carbohydrate or protein yields 4 calories while one gram of fat yields 9 calories. The allowance for protein recommended by the Nutriton Expert Group of the Indian Council of Medical Research is about 1 gm per kg body weight per day for adults, Children need proportionately more proteins because they are at a growing age.

Taking the calorie consumption of an average adult male doing sedentary work as 1, the calorie requirements of others work out as under:

Adult male (sedentary worker)	1.0
,, (moderate worker)	1.2
,, (heavy worker)	1.6
,, female (sedentary worker)	0.8
,, (moderate worker)	0.9
Adolescents (12–21 years)	1.0

Human Expenditure of Energy

Men	*Rate in calories per hour*
Lying at ease	90
Sitting at ease	108
Sitting and writing	114
Standing at ease	118
Driving a car	168
Driving a motor cycle	204
Dressing, washing, shaving	212
Walking 4 mph	492
Climbing 6-inch stairs at 1½ mph	620
Bicycling at 13 mph	660
Running at 5 mph	850
Swimming, breaststroke	1,212

Knitting	78
Typing at 60 w. p m.	80
Ironing	100
Washing up	198
Bed making	420

Vitamins

Vitamins can be broadly divided into fat-soluble and water-soluble vitamins. Vitamin A, D, E & K are fat soluble vitamins. Vitamin C&B (including vitamins B_1, B_2 and other B-Group vitamins) are water-soluble.

Function of Vitamins. The Vitamins are necessary auxiliaries in metabolism*. They combine with specific proteins, as parts of the various oxidative enzyme systems, which are concerned with the breakdown of carbo-hydrates, proteins and fat in the body. Thus, they are intimately involved in the mechanism, which releases energy, carbon dioxide and water as the end products of metabolism

---

* Metabolism represents the chemical processes going on in living organisms. It involves two activities:

i Catabolism, which reduces complex substances into simple ones, and releases energy, and

ii Anabolism, which comprises the building up of complex substances from simple ones. Metabolic reactions are usually controlled by enzymes.

Table 336

Vitamins at a Glance

Name	*Function*	*Sources*	
		Vegetable	*Animal*
Vitamin A Carotene*	For normal vision, growth and healthy skin.	Fresh vegetables, fruits.	Fish liver oil, whole milk, butter,curds and egg yolk.
Vitamin B_1 or Thiamine	For normal appetite and healthy nervous system.	Whole grains, yeast, cabbage, carrots, onions, tomatoes, ground nuts,	Egg yolk, liver.
B_2 Complex i. Riboflavin	For oxidation inside the cells, metabolism of amino acids & fatty acids.	Green leafy vegetables, millets, pulses.	Milk and milk products, eggs, liver.
ii. Niacine † (Nicotinic acid)	For utilisation of glucose and synthesis of fats.	Yeast, outer parts of the grains, ground nuts.	Meat, liver, poultry, fish.
iii. Pantothenic acid	For breakdown of fatty acids, cholestrol and phospholipids.	All vegetables	Nil
iv. B_6 Pyridoxin**	Converts the amino acid tryptophan¶ into niacin, removes carbondioxide from amino acids.	Whole grains, leafy vegetables	Meat, liver etc.
v. Folic acid (Folacin)	For multiplication and maturation of red blood cells.	Fresh green vegetables, pulses	Liver
vi. Vitamin B 12 (Cobalamin)	For multiplication and maturation of cells, synthesis of nucleic acids and proper functioning of the nervous systems.	Nil	Milk, liver, meat.
vii. Vitamin H (Biotin)	For synthesis of choline and methionine maturation of red blood cells.	Molasses, yeast	Liver, milk, egg yolk.
Vitamin C (Ascorbic acid)	Essential for collagenous or the inter-cellular material which holds the cells together, and for quick healing of wounds.	Citrus fruits, pine-apple, cabbage, sprouted legumes, amla*	Nil
Vitamin D	For absorption and utilisation of calcium and for proper bone formation.	Nil	Liver, egg yolk, milk, butter, ghee, fish-liver oil.
Vitamin E	For preventing harmful oxidation.	Lettuce, peas, vegetable oils	Liver, egg yolk, milk
Vitamin K	For proper clotting of blood	Green leaves, tomatoes, spinach, cabbage	Liver. egg yolk
Choline†	Transmission of nerve impulses-prevention of fatty degeneration of the liver etc.	Nil	Liver, egg yolk

* In vegetable foods, vitamin A is often present in the form of *Carotene*, so called, after the orange pigment found in carrots. Carotene is converted by the body into vitamin A. It is therefore known as **pro-vitamin A**.

† The term *niacine* is now preferred to *nicotinic acid*, to avoid confusion with the nicotine of tobacco.

** This vitamin exists in three active forms, *pyridoxins*, *pyridoxal* and *pyridoxamine* which are mutually interchangeable in the body.

¶ Tryptophan is found in most good quality proteins.

* Amla or nellikka, contains a high percentage of vitamin C, (600 mg per 100 gm) which is not lost by heating or drying, as is the case with other fruits or vegetables.

† Not a true vitamin.

Minerals

A large number of minerals is present in the body and performs a variety of functions. Minerals account for about 4 per cent of the body weight. Calcium and phosphorus form about three-fourths of the mineral elements. Five other minerals—potassium. sulphur, sodium, chlorine and magnesium account for most of the rest. Many elements are present in such minute quantities, that they are called *trace elements* or *micro-nutrients,*

Mineral Composition of the Human Body

1. Major elements	*Percentage*	*Grams per 70 kg weight.*
Calcium	1.5 to 2.2	1050-1540
Phosphorus	0.8 to 1.2	560-840
Potassium	0·35	245
Sulphur	0.25	175
Sodium	0.15	105
Chlorine	0.15	105
Magnesium	0.05	35
2. Minor Elements		
Iron	0·004	2.8
Manganese	0.003	0.21
Copper	0.00015	0.105
Iodine	0.00004	0.024

Major Elements
Eelctro-chemical functions

Among the major elements, calcium, potassium, sodium and magnesium when dissolved in water function as cations (pronounced cat-ions). and phosphorus, sulphur and chlorine as anions (pronounced an-ions). Cations are positively charged ions, that is, they are deficient in electrons and anions are negatively charged ions, that is, surplus in electrons. These seven ions maintain the electrical neutrality of body fluids and cells and also play a part in maintaining the proper liquid volume of the blood and other fluid systems.

Calcium is the most abundant mineral in the human body, 99 per cent of which occur in the bones and teeth and one per cent in the blood, other body fluids and soft tissues. Calcium aids in blood coagulation, activation of some enzymes and normal responses to nervous stimuli. Vitamin D is concerned with the optimum absorption of calcium.

Sources. Milk, cheese, egg, green vegetables, especially amaranth, fenugreek and drumstick leaves and tapioca.

Phosphorus. Eighty per cent of phosphorus is combined in the bones with calcium, the rest is in the soft tissues of the body. Phosphorus acts as a constituent of enzymes in the metabolism of carbohydrates and fats. It is a regulator of acid-base balance in blood and a transporter of fatty acids. In the form of *adenesine triphosphate,* it supplies energy for muscle contraction.

Sources. Liver, kidney, egg yolk, meat, fish, milk, cheese, cereals.

Potassium. occurs primarily within the cell, muscles and red blood cells containing most of it. Potassium is essential, along with other minerals, in the contraction of the muscles, regular heart rhythm, the conduction of nerve impulse and maintenance of fluid balance.

Sources. Meat, fish, fowl, cereals, fruits and vegetables.

Sulphur is found mainly as a constituent of two amino acids *cystine* and *methionine*. Cystine is important in skin, hair and nails. Methionine is important in the synthesis of adrenalin (product of adrenal glands) and creatine (a crystalline compound present in the muscles).

Sources. Eggs, cheese, milk, meat, nuts and legumes.

Sodium is mainly found in blood plasma and in inter-cellular fluid. It functions as a regulator of acid-base equilibrium, osmotic pressure, water balance, muscle contraction and nervous irritability.

Sources. Table salt, baking soda, baking powder, meat, milk and eggs.

Atomic Composition of the Human body*

Name of element		*Percentage of total atoms*
Hydrogen	(H)	63
Oxygen	(O)	25.5
Carbon	(C)	9.5
Nitrogen	(N)	1.4
Calcium	(Ca)	.31
Phosphorus	(Cl)	.22
Chlorine	(Cl)	.03
Potassium	(K)	.06
Sulphur	(S)	.05
Sodium	(NA)	.05
Magnesium	(Mg)	.01
All others		.01

* The figures are rounded off and the totals do not exactly equal 100.
Source. *Scientific American*

Chlorine occurs as *sodium chloride* in the inter-cellular fluid and as *potassium chloride* in the cell. It is a constituent of stomach acids, acts as acid-base balance and regulates osmotic pressure.

Sources. Table salt, meat, milk, eggs.

Magnesium. Seventy per cent of magnesium is found in the form of phosphates and carbonates in the bones; the rest is in the muscles. It functions in collaboration with sodium, potassium and Calcium in the regulation of cardiac, skeletal, muscle and nerve tissues

Sources. Cereals, nuts, legumes, meat and milk.

Minor Elements

Iron. About 70 per cent of iron is in the form of haemoglobin in blood, 4 per cent as myoglobin in the muscles, 25 per cent in liver, bone marrow, spleen and kidneys and 1 per cent in plasma iron and oxidative enzymes.

Traces of copper are necessary for the conversion of iron into haemoglobin. As red blood cells die, the iron contained in them is reclaimed by liver and spleen and put back into new blood cells. About 27 to 28 mg. of iron is thus reclaimed daily and put back into use.

Sources. Liver, meat, egg yolk, raisins, peas, fish, whole grains, green vegetables.

Manganese, aids in thyroxine formation, formation of urea, and activation of enzymes.

Sources. Whole grain, cereals, legumes, leafy vegetables, meat, fish and fowl.

Copper helps in absorption and metabolism of iron, oxidisation of fatty acids, metabolism of ascorbic acid (vitamin C) and skin pigmentation. Copper is stored in liver and central nervous system and excreted by bile into the intestines.

Sources. Liver, shell-fish, nuts, legumes, and whole grain cereals.

Iodine. Most of the iodine is found in the thyroid gland and is used in the production of thyroxine. When the tissues use thyroxine, the iodine in it is released. About one-third of the iodine so released is used in the production of new thyroxine. Deficiency of iodine causes *goitre* (a swellihg of the throat) and *cretinium* (under-development of mind and physique).

Sources. Sea foods, iodised salts and iodised sweets.

Trace Minerals, are so called because only minute quantities of these minerals are required by the body. But this fact does not in any way diminish their importance. In this aspect, they are comparable to the vitamins.

Among the trace minerals or micronutrients found in living organisms are aluminium, arsenic, barium, boron, bromine, cadmium, cobalt, chromium, lead, molybdenum, nickel, selenium, silicon, strontium, tin, vanadium and zinc.

Water

Water is a vital constituent of diet. An average man contains about 45 litres of water (70 per cent of the body weight). The cells contain 30 litres. Three litres are in the plasma of the blood, where the suspended cells make a total volume of blood upto 5 litres. The remaining 12 litres (45-33) fill the spaces between groups of cells. This is tissue fluid which bathes all the cells of the body.

Uses of water. Water is absolutely necessary for the digestion and absorption of the foods taken in It is the great solvent and neutraliser in the body. It is the substance in which bodily chemical reactions take place. Water is the carrier or transporting medium for all nutrients and body substances. It regulates body temperature. It is the great purifying agent in the body and removes waste materials in the form of tears, perspiration, urine and faeces. Water substances act as lubricants in the body, especially in the joints. It is a part of all body tissues and fluids.

Effects of deficiency. Acidosis, alkalosis and dehydration, oedema, fever, shock, uraemia and constipation are some of the clinical signs of inadequate salt and water in the body.

Sources. The body obtains water mainly from the fluids we drink, from the solids we eat and also from the oxidation of energy foods. Fats and carbohydrates are oxidised in the body to carbondioxide and water.

NUTRIENT VALUE OF FOODSTUFFS

Cereals and Foodgrains. Cereals like rice, wheat and millets, ragi, cholam and bajra form the main food in India. Cereals are rich in carbohydrates. They generally contain 6 to 12 per cent protein but these proteins are usually deficient in the essential amino acid *lysine*. Rice protein however is richer in *lysine* than other cereals. Most cereal grains are in poor mineral content and rice is especially poor. Ragi is however, rich in minerals, especially calcium, and bajra in iron Whole cereal grains are important sources of B-vitamins but in milling, rice loses the outer layers containing thiamine. Parboiled rice, even when milled does not lose its thiamine content. Except yellow maize, which contains some amounts of carotene, no other cereal grain is a source of vitamin A or C

Pulses or legumes, as they are called, are rich in proteins. Pulse proteins however are of relatively low biological value because of the deficiency of the essential amino acid *methionine* but they are rich in *lysine*. Pulses are not rich sources of minerals but they are rich in B-vitamins. Dried pulses do not contain vitamin C but if they are germinated significant amounts of vitamin C are generated.

Leafy vegetables. Most of the green leafy vegetables are rich sources of calcium, iron, carotene, vitamin C, riboflavin and folic acid.

Roots and tubers are rich in carbohydrates. But foods like carrot are also rich in carotene (vitamin A); those like potato, contain significant amounts of vitamin C, while foods like tapioca contain calcium also.

Other vegetables are those which do not fall into the category of leafy vegetables or root vegetables. These vegetables are fruits, like lady's finger, cucumber, tomato, bitter gourd, snake gourd, brinjal etc. They are fairly good sources of vitamins and minerals.

Nuts and oil seeds are good sources of fat (oil) protein and minerals and fair sources of vitamins; e. g. groundnut or cashewnut.

Fruits in general are rich in vitamin C, particularly, gooseberry (amla), guava (perakka) and citrus fruits. Yellow fruits like mango or papaya contain carotene and dried fruits like dates are sources of iron.

Fish and sea foods are rich sources of protein, B-vitamins and also minerals, especially calcium.

Fleshy foods are rich sources of protein and B-vitamins, especially B_{12}. They are generally deficient in vitamin A, but liver is an exception.

Egg is a rich source of all nutrients except vitamin C. Its protein is of high quality

Milk and milk products Milk is ideal food for infants and young children and a good supplementary food for all. It contains all vital nutrients, except vitamin C and iron.

Balanced Diet. A balanced diet is one that contains all the nutrients in the correct proportion, so that the minimum daily requirements of all these nutrients are obtained. Thus it will include protective foods, energy yielding foods and body building foods. The components of a balanced diet differ according to age, sex and physiological state, namely sickness, pregnancy and lactation.

Some Indian Foods—Values

Values given are per 100 gm. of edible portion

Name of foodstuff	*Protein gm.*	*Fat gm.*	*Minerals gm.*	*Carbo hydrates gm.*	*Energy Kcal.*
Cereals					
Jowar	10.4	1.9	1.6	72.6	349
Maize, dry	11.1	3.6	1.5	66.2	342
Rice, parboiled, milled	6.4	0.4	0.7	79.0	346
Rice, raw, milled	6.8	0.5	0.6	78.2	345
Wheat (whole)	11.8	1.5	1.5	71.2	346
Wheat flour (maida)	11.0	0.9	0.6	73.9	348
Pulses & Legumes					
Green gram (whole)	24.0	1.4	3.5	56.7	334
Khesari dhal	28.2	0.6	2.3	56.6	345
Peas, dry	19.7	1.1	2.2	56.5	315
Soya beans	43.2	19.5	4.6	20.9	432
Leafy Vegetables					
Amaranth, tender	4.0	0.5	2.7	6.1	45
Araikeerai (cheera)	2.8	0.4	2.4	7.4	44
Cabbage	1.8	0.1	0.6	4.6	27
Drumstick leaves	6.7	1.7	2.3	12.5	92
Roots & Tubers					
Carrot	0.9	0.2	1.1	10.6	48
Potato	1.6	0.1	0.6	22.6	97
Tapioca	0.7	0.2	1.0	38.1	157
Yam, elephant	1.2	0.1	0.8	18.4	79

Other Vegetables					
Bitter gourd	1.6	0.2	0.8	4.2	25
Brinjal	1.4	0.3	0.3	4.0	24
Cauliflower	2-6	0.4	1.0	4.0	30
Cucumber	0·4	0.1	0.3	2.5	13
French beans	1.7	0.1	0.5	4.5	26
Lady's finger	1.9	0.2	0.7	6 3	35
Nuts & Oilseeds					
Almond	20.8	58.9	2.9	10.5	655
Cashewnut	21 2	46.9	2.4	22.3	596
Coconut, fresh	4.5	41.6	1.0	13.0	444
Groundnut	25.3	40.1	2.4	26.1	567
Fruits					
Amla (Nellikka)	0.5	0.1	0.5	13.7	58
Banana, ripe	1.2	0.3	0.8	27.2	116
Lime	1.5	1.0	0.7	10.9	59
Mango, ripe	0.6	0.4	0.4	16 9	74
Orange	0.7	0.2	0.3	10.9	48
Papaya, ripe	0.6	0.1	0·5	7.2	32
Pineapple	0.4	0.1	0.4	10.8	46
Tomato, ripe	0.9	0.2	0.5	3.6	20
Fish					
Pomfrets, white	17.0	1.3	1.5	1.8	87
Prawn	19.1	1.0	1.7	0.8	89
Sardine	21.0	1.9	1.7	...	101
Shrimp (small, dried)	68.1	8.5	17.4	...	349
Meat					
Beef muscle	22.6	2.6	1.0	..	114
Egg, hen	13 3	13.3	1.0	..	173
Fowl	25.9	0.6	1.3	..	109
Goat meat	21.4	3.6	1.1	...	118
Pork, muscle	18.7	4 4	1 0	...	114

Milk and Edible Oils					
Milk, cow	3.2	4.1	0.8	4.4	67
Curds	3.1	4.0	0.8	3.0	60
Cheese	24.1	25.1	4.2	6.3	348
Ghee (cow)	..	100.0	...	.	900
Hydrogenated oil (vanaspathi)	..	100.0	...	.	900

Source: National Institute of Nutrition-ICMR-Hyderabad, India.

Vitamin C for Diabetes

Linus Pauling's wonder drug-Vitamin C-may revolutionise the treatment of diabetes.

The discovery of its efficacy in treating this chronic disease has been made by scientists at the Stanford University School of Medicine, according to the Journal of International Research communications.

Dr. Charles Daniel and Dr. Fred Dice of the University's Pharmacology Department have discovered that when large doses of vitamin C are administered, the dosage of Insulin required to maintain the sugar levels in the metabolism can be "substantially reduced".

Interestingly Dr. Dice, a diabetic since he was 15 years old, was himself a subject of the experiments they conducted.

UNI March 15, 1973

AWARDS

1. NOBEL PRIZES

Alfred B. Nobel, inventor of dynamite, who died on December 10, 1896 bequeathed $ 9,000,000, the interest to be distributed yearly to those who had most benefited mankind during the preceding year.

Awards for Physics and Chemistry are made by the Swedish Academy of Science; Medicine or Physiology by the Stockholm Faculty of Medicine; Literature by the Swedish Academy of Literature; Peace by five persons elected by the Norwegian Parliament (Storting). The Fund is managed by a board of directors the head of which is appointed by the Swedish Government. Nobel Prize for Economic Science was first awarded in 1969.

1. Physics

1901 W. K. Roentgen (Germany).
1902 H. A. Lorentz and P. Zeeman (Holland).
1903 A. H. Becquerel, Pierre & Marie Curie (France)
1904 Lord Rayleigh (England)
1905 Philipp Lenard (Germany)
1906 J. J. Thomson (England)
1907 A. A. Michelson (U S A)
1908 G. Lippmann (France)
1909 G. Marconi (Italy) and F. Braun (Germany)
1910 J. D. vander Walls (Holland)
1911 W. Wien (Germany)
1912 Gustaf Dalen (Sweden)
1913 H. Kamerlingh-Onnes (Netherlands)
1914 M. von Laue (Germany)
1915 W. H. Bragg and W. L. Bragg (England)
1916 No award.
1917 C. G. Barakla (England)
1918 Max von Planck (Germany)
1919 J. Stark (Germany)
1920 C. E. Guillaume (Switzerland)
1921 A. Einstein (Germany)

1922 Niels Bohr (Denmark)
1923 R. A. Millikan (U S A)
1924 Karl Seigbahn (Sweden)
1925 James Franck & Gustav Hertz (Germany)
1926 Jean B. Jerrin (France)
1927 Arthur Compton (U S A) & Charles T. R. Wilson (England)
1928 O. W. Richardson (England)
1929 L. V. de Broglie (France)
1930 Sir C. V. Raman (India)
1931 No award
1932 W. Heisenberg (Germany)
1933 Paul A. M. Dirac (England) & Erwin Schroedinger (Austria)
1934 No award
1935 J. Chadwick (England)
1936 V. F Hess (Austria) and C. D. Anderson (U S A)
1937 C. J. Davidson (U S A) and G. P. Thomson (England)
1938 E. Fermi (Italy)
1939 E. O. Lawrence (U S A)
1940-42 No award
1943 Otto Stern (U S A)
1944 Isador I. Rabi (U S A)
1945 W. Pauli (Austria)
1946 P. W. Bridgman (U S A)
1947 Sir E. Appleton (England)
1948 P. M. S. Blackett (England)
1949 Hideki Yukawa (Japan)
1950 C. F. Powell (England)
1951 Sir John Cockcroft (England) and E. T. S. Walton (Ireland)
1952 E. M. Purcell and Felix Block (U S A)
1953 Fritz Zernike (Netherlands)
1954 S. Max Born (England) and Walther Bothe (Germany)
1955 Wills E. Lamb and Polykarp Kusch (U S A)
1956 Walter H. Brattain, Walter Shockley and John Bardeen (U S A)
1957 Tsung Dao Lee and Chen Ning Yang (U S A) (b. China)
1958 Pavel A. Cherenkov, Ilya M. Frank and Igor E. Tamm (U S S R)
1959 Emilio Segre and Owen Chamberlain (U S A)
1960 Donald A Glaser (U S A)
1961 Robert Hofstadter (U S A) & R. L. Mossabaur (Cermany)
1962 Lev. D. Landau (U S S R)
1963 Eugene P. Wigner (U S A), Maria Goeppert-Mayer (U S A) & J. Hans D. Jensen (Germany)
1964 Charles H. Townes (U S A) Nikolai G. Basov & A. M. Prokhorov (U S S R)
1965 Shinichero Tomonaga (Japan), Julian Schwinger & Richard P: Feynman (U S A)
1966 Alfred Kaster (France)
1967 Hans A. Bethe (W. Germany)
1968 Luis W. Alvarez (U S A)
1969 Murray Gell-Mann (U S A)
1970 Louis Neel (France) and Hannes Alfven (Sweden)
1971 Denis Gabor (Britain)
1972 John Bardeew ,,
John Schrieffer ,,
Leow Cooper (USA)

2. Medicine and Physiology

1901 E. A. von Behring (Germany)
1902 Sir Ronald Ross (England)
1903 N. R. Finsen (Denmark)
1904 Ivan P. Pavlov (Russia)
1905 Robert Koch (Germany)
1906 S. Ramon Cajal (Spain) and Camillo Golgi (Italy)
1907 C. L. A. Laveran (France)
1908 Paul Ehrlich (Germany) & E. Metchnikoff (France)
1909 T. Kocher (Sweden)
1910 A. Koseel (Germany)
1911 A. Gullstrand (Sweden)
1912 Alexis Carrel (USA)
1913 Charels Richet (France)
1914 R. Barany (Austria)
1915-18 No award
1919 Dr. J. Bordet (Belgium)
1920 August Krogh (Denmark)
1921 No award
1922 A. V. Hill (England) and Otto Meyerhof (Germany)
1923 Frederic G. Banting and J. J. R. MacLeod (Canada)
1924 W. Einthoven (Holland)
1925 No award
1926 Johan Fibiger (Denmark)
1927 J. Wagner-Jauregg (Austria)
1928 Charles Nicolle (France)
1929 Sir F. G. Hopkins (England) and C. Eijkmann (Holland)
1930 Karl Landsteiner (USA)
1931 Otto H. Warburg (Germany)
1932 Sir C. S. Sherrington & E. D. Adrian (England)
1933 T. H. Morgan (USA)
1934 G. R. Minot, W. P Murphy & G. H. Whipple (USA)
1935 Hans Spemann (Germany)
1936 Sir Henry H. Dale (England) and Otto Loewe (Austria)
1937 A. Szent-Gyorgyi (Hungary)
1938 C. Heymans (Belgium)
1939 G. Domagk (Germany) declined
1940-42 No award
1943 C. P. Henrik Dam (Denmark) and Edward A. Doisy (USA)
1944 Joseph Erlanger and Herbert Gasser (USA)
1945 Sir Alexander Fleming, Sir Howard W. Florey (England) and E. B. Chain (Germany)
1946 Herman J. Miller (USA)

1947 Carl F. and Gerty T. Cori (USA) & Bernardo A. Housay (Argentina)
1948 Paul Mueller (Switzerland)
1949 Walter R. Hess (Switzerland) & Antonio C. A. F. Moniz (Portugal)
1950 Edward C. Kendall, Philip S. Hench (USA) & T. Reichstein (Switzerland)
1951 Max Theiler (USA–b. Africa)
1952 S. A. Waksman (USA)
1953 Hans A. Krebs (England) & Frits A Lipmann (USA)
1954 J. F. Enders, F. C. Robbins & T. H. Weller (USA)
1955 A. H. T. Theorell (Sweden)
1956 Andre F. Cournand, D. W Richards (USA) & Dr. W. Forssmann (Germany)
1957 Daniel Bovet (Italy).
1958 G. W. Beadle, Joshua Lederberg & E. L. Tatum (USA)
1959 Severo Ochoa & Arthur Kornburg (USA)
1960 Sir M. Burnet (Australia) & Peter B. Medawar (England)
1961 George von Bekesy (USA)
1962 Francis H. C Crick (England), Maurice H. F. Wilkins (England) and James D. Watson (USA)
1963 Sir John C. Eccles (Australia), Andrew F. Huxley, A. L. Hodgkin (England)
1964 Konrad E. Bloch (USA) & Feodor Lynen (W. Germany)
1965 Francois Jacob, Andre Lwoff & Jacques Monod (France)
1966 Francis P. Rous & Charles B. Huggins (USA)
1967 Ranger Granit (Sweden), Haldon Keffer Hartline and George Wald (USA)
1968 Dr. Hargovind Khorana (USA) (b. India) Pro. Robert W. Holley & Marshall W. Nirenberg (USA)
1969 Dr. Max Delbruck (USA), Dr. Alfred D. Hershey (USA), Dr. Salvador Luria (USA)
1970 Sir Bernard Katz (England), Dr. Ulf von Euler (Sweden), Dr. Julius Axelrod (USA)
1971 Dr. Earl Wilbur Sutherland (USA)
1972 Gerald Edelmaw (USA), Rodney Porter (Britain)

3. Chemistry

1901 J. H. vant Hoff (Holland)
1902 Emil H. Fischer (Germany)
1903 S. A. Arrhenius (Sweden)
1904 Sir W. Ramsay (England)
1905 Adolf von Baeyer (Germany)
1906 Henri Moissan (France)
1907 E. Buchner (Germany)
1908 Ernest Rutherford (England)
1909 Wilhelm Ostwald (Germany)
1910 Otto Wallach (Germany)
1911 Marie Curie (France)
1912 F. A. V. Grignard and P. Sabatier (France)
1913 Alfred Werner (Switzerland)
1914 T. W. Richards (England)
1915 R. Willstatter (Germany)
1916–17 No award
1918 Fritz Haber (Germany)
1919 No award
1920 Walther Nernst (Germany)
1221 Frederic Soddy (England)
1922 F. W. Aston (England)
1923 Fritz Pregl (Australia)
1924 No award
1925 R. A. Zsigmondy (Germany)
1926 T Svedberg (Sweden)
1927 H. Wieland (Germany)
1928 Adolf Windaus (Germany)
1929 A. Harden (England) and H von Euler-Chelpin (Sweden)
1930 Hans Fischer (Germany)
1931 Carl Bosch and Friedrich Bergius (Germany)
1932 Irving Langmuir (USA)
1933 No award
1934 Harold C. Urey (USA)
1935 Frederick Joliot-Curie & Irene Joliot-Curie (France)
1936 Peter J. W Debye (Germany)
1937 Walter N. Haworth (England) and Paul Karrer (Switzerland)
1938 R. Kuhn (Germany) declined
1939 Adolf F. J. Butenandt (Germany) declined and Leopold Ruzicka (Switzerland)
1940-42 No award
1943 G. von Heves (Hungary)
1944 Otto Hahn (Germany)
1945 Arturi I. Virtanen (Finland)
1946 J. B. Summer, W. M. Stanley and J. H Northrop (USA)
1947 Sir Robert Robinson (England)
1948 Arne W K. Tiselius (Sweden)
1949 William F. Giauque (USA)
1950 Otto Diels & Kurt Alder (Germany)
1951 Edward M. McMillian & Glen T. Seaborg (USA)
1952 Archer J. P. Martin & Richard L. M. Synge (England)
1953 Herman Staudinger (Germany)
1954 Linus C. Pauling (USA)
955 Vincent du Vigneaud (USA)
1956 Sir Cyril Hinshelwood (England),
1 Nikolai N. Semenov (USSR)
1957 Sir Alexander Todd (England)
1958 Frederick Sanger (England)
1959 Jaroslav Heyrovsky (Czechoslovakia)
1960 Willard F. Libby (USA)
1961 Melvin Calvin (USA)
1962 Max F. Perutz & J. C. Kendrew (England)
1963 Kerl Ziegler (W. Germany) & Guilio Natta (Italy)
1964 Dorothy C. Hodgkin (England)

1965 Robert B. Woodward (USA)
1966 Robert S. Mulliken (USA)
1967 Manfred Eigen (East Germany), Ronald G W. Norrish (UK) and George Porter (UK)
1968 Lars Onsager (USA)
1969 Derek H R. Barton (England) and Odd Hassel (Norway)
1970 Luis F. Leloir (Argentina)
1971 Gerhard Herzberg (Canada)
1972 Christian B. Anfinsen, Stanford Moore & William H. Stein (USA)

4. Literature

1901 Rene F. A. Sully-Prudhomme (France)
1902 T. Mommsen (Germany)
1903 B. Bjornson (Norway)
1904 F. Mistral (France) and Jose Echegaray (Spain)
1905 H. Sienkiewicz (Poland)
1906 Giosue Carducci (Italy)
1907 Rudyard Kipling (England)
1908 R. Eucken (Germany)
1909 Selma Lagerlof (Sweden)
1910 Paul J. L. Heyse (Germany)
1911 M. Maeterlinck (Belgium)
1912 G. Hauptmann (Germany)
1913 Rabindranath Tagore (India)
1914 No award
1915 Romain Rolland (France)
1916 V. Heidenstam (Sweden)
1917 Karl Gjellerup and D H. Pontoppidan (Denmark)
1918 No award
1919 Carl F G. Spitteler (Switzerland)
1920 Knut Hamsun (Norway)
1921 Anatole France (France)
1922 J. Benaventey Martinez (Spain)
1923 W. B. Yeats (Ireland)
1924 L. S. Reymont (Poland)
1925 G. B. Shaw (England)
1926 Grazia Deledda (Italy)
1927 Henri Bergson (France)
1928 Sigrid Undset (Norway)
1929 Thomas Mann (Germany)
1930 Sinclair Lewis (USA)
1931 Erik A Karlfeldt (Sweden)
1932 John Galsworthy (England)
1933 Ivan G. Bunin (USSR)
1934 Luigi Pirandello (Italy)
1935 No award
1936 Eugene O'Neill (USA)
1937 R. M. du Gard (France)
1938 Pearl S Buck (USA)
1939 F. E. Sillanpaa (Finland)
1940-43 No award
1944 J. V. Jensen (Denmark)
1945 Gabriela Mistral (Chile)
1946 Hermann Hesse (Switzerland)
1947 Andre P G. Gide (France)
1948 T. S. Eliot (England)
1949 William Faulkner (USA)
1950 Bertrand A. W. Russell (England)
1951 Par Lagerkvist (Sweden)
1952 Francois Mauriac (France)
1953 Sir Winston S. Churchill (England)
1954 Ernest Hemingway (USA)
1955 Halldor K Laxness (Ireland)
1956 Juan R Jimenez (Spain)
1957 Albert Camus (France)
1958 Boris L. Pasternak (USSR)
1959 Salvatore Quasimodo (Italy)
1960 Saint John Perse (France)
1961 Ivo Andric (Yugoslavia)
1962 John Steinbeck (USA)
1963 Giorgos Seferis (Greece)
1964 Jean-Paul Sartre (France)
1965 Mikhail Sholkhov (USSR)
1966 Samuel J. Agnon (Israel) &Nelly Sachs(Sweden)
1967 Miguel Angel Asturias (Guatemala)
1968 Yasunari Kawabata (Japan)
1969 Samuel Beckett (Ireland)
1970 Alexander Solzhenistsyn (USSR)
1971 Pablo Neruda (Chile)
1972 Heinrich Boell (Germany)

5. Peace

1901 Jean H Dunant (Switzerland) & Frederick Passy (France)
1902 Elie Ducommun and A Gobat (Switzerland)
1903 Sir W. R. Cremer (England)
1904 Institute of International Law (Belgium)
1905 Bertha von Suttner (Austria)
1906 T. Roosevelt (USA)
1907 E. T. Moneta (Italy) and Louis Renault (France)
1908 K. P. Arnoldson (Sweden)
1909 August M. F. & A Beernaert (Belgium)
1910 International Peace Bureau (Switzerland)
1911 T. M. C. Asser (Holland) & A. H. Fried (Austria)
1912 Elihu Root (USA)
1913 H. La Fontaine (Belgium)
1914-16 No Award.
1917 International Red Cross (Geneva)
1918 No award
1919 Woodrow Wilson (USA)
1920 Leon Bourgeois (France)
1921 K. H Branting (Sweden) & Christian L Lange (Norway)
1922 Fridtjof Nansen (Norway)
1923-24 No award.
1925 Charles G. Dawes (USA) & Sir J. A. Chamberlain (England)
1926 Aristide Briand (France) and G. Stresemann (Germany)
1927 F. Buisson (France) and Ludwig Quidde (Germany)
1928 No award
1929 Frank B. Kellogg (USA)
1930 Lars O. J. Soderblom (Sweden)

1931	Jane Addams and Nicholas M. Butler (USA)
1932	No award.
1933	Sir Norman Angell (England)
1934	A. Henderson (England)
1935	Carl von Ossietzky (Germany)
1936	C. de S. Lamas (Argentina)
1937	Viscount Cecil (England)
1938	Nansen International Office for Refugees (Geneva)
1939-43	No award
1944	International Committee of Red Cross (Switzerland)
1945	Cordell Hull (USA)
1946	Emily G. Balch and John R. Mott (USA)
1947	American Friends Service Committee (USA) & Br. Society of Friends Service Council (England)
1948	No award.
1949	Lord John Boyd-Orr (England)
1950	Ralph J. Bunche (USA)
1951	Leon Jouhaux (France)
1952	Albert Schweitzer (France)
1953	George C. Marshall (USA)
1954	Office of the U.N. High Commissioner for Refugees
1955	No award
1956	No award
1957	Lester B. Pearson (Canada)
1958	Father G. Henri Pire (Belgium)
1959	Philip J. Noel Baker (England)
1960	A. J. Luthuli (South Africa)
1961	Dag Hammarskjold (Sweden)
1962	Linus C. Pauling (USA)
1963	International Red Cross Committee & Red Cross League (Switzerland)
1964	Dr. Martin Luther King (USA)
1965	United Nations Children's Fund
1966	No award
1967	No award
1968	Rene Cassin (France)
1969	International Labour Organisation
1970	Norman Ernest Borlaug (USA)
1971	Willy Brandt (German)
1972	No prize.

6. Economics

1969	Ragnar Frisch (Norway) & Jan Tinbergen (Holland)
1970	Dr. Paul A. Samuelson (USA)
1971	Simon Kuznets (USA)
1972	John R. Hicks (Britain) & Kenneth J Arrow (USA)

Nobel Awards of 1973

Physics

The award for Physics, went to three scientists jointly, (1) Dr. Leo Esaki (48) a Japanese (2) Dr. Ivar Giaevar (44) a Norwegian-born American and (3) Dr. Brian D. Josephson (33) an Englishman.

Dr. Leo Esaki and Dr. Ivar Giaevar were given the award "for their experimental discoveries, regarding tunnelling phenomena in semi-conductors and super conductors, respectively". Dr. Brian Josephson received the award "for his theoretical predictions of the properties of a super-current, through a tunnel barrier, in particular, those phenomena, which are generally known as Josephson Effects".

All the three are fairly young for Nobel prize. All three have done their award winning work before they had received their doctorates.

Esaki was born in Osaka, Japan. He took his PhD.degree from Tokyo University in 1959 and went to the USA in 1960. He was working at I.M.B.'S research centre, when he won the award. In 1957, while still a graduate student, he demonstrated a tunnelling process in germanium and evolved a switching device named a tunnell diode. He is the third Japanese to receive a Nobel Prize in Science.

Giaevar was born in Bergen, Norway. He studied at the Norwegian Institute of Technology, from where he graduated in 1952. He emigrated to Canada in 1954 and to the USA in 1956. He was working with the General Electrics at New York, at the time of the award.

Giaevar worked with junctions in which one metal electrode was superconducting and the other was not and showed that the way the current changes with voltage depends on the density of electron to establish the theory of superconductivity, for which John Bardeen, Leon Cooper and Robert Schieffer received Nobel Prize in 1972.

Brian Josephson is a native of Wales and studied at Cambridge. He was working at Cambridge University, when he was named for the award. In 1962, while still a graduate student at Cambridge, he published his findings predicting new and unexpected phenomena in superconductors and particularly the phenomena called Josephson Effects.

Esaki and Giaevar will get half of 122,000 dollar prize,namely $61,000 and the other half ($61,000) will go to Josephson.

Chemistry

The prize for Chemistry went to two scientists jointly (1) Dr. Ernst Otto Fischer (55) of the Munich University and Dr. Geoffery Wilkinson (52) of the Imperial College of London "for their pioneering work, performed independently, on the chemistry of "organometallic" substances–the so-called Sandwich compounds".

They have evolved a compound since named "ferrocine". In which an iron atom was sandwiched symmetrically, between two carbon rings of 5 atoms. The unusual bonding properties thus discovered, in transition metals such as iron, is now being used in the preparation of synthetic polymers and drugs.

Prof. Fischer was born in 1918. He was educated in Munich, where he had been Director of the Inorganic Chemistry Laboratory since 1969. Dr. Wilkinson, born in 1921 was educated in London. He is professor of Inorganic Chemistry at the Imperial College of Science, London.

The prize $120,000 is shared by both equally.

Physiology and Medicine

The award for physiology and medicine were also given jointly to three people (1) Karl Von Frisch (87) a German, now living in retirement at Munich (2) Konrad Zacharias Lorenz (70) a Vienna born Austrian, now with the Institute of Behavioural Research, Gruenen, Austria and (3) Nicholas Tinbergen (66) a Dutchman, now at Oxford University, "for their discoveries concerning organisation and elicitation of individual and social behaviour patterns". All three recipients are old men, unlike the three physics lauraetes who are very young.

Von Frisch was the director of the Zoological Institute, University of Munich till his retirement in 1958. He is best known for his work on bees. He has explained how the bees, communicate to each other about food (honey) by performing different kinds of dances in different surroundings. These dances, he says, "consist of innate patterns impressed on the nervous system of the insects".

Lorenz started his work with geese at the Max Planck Institute of Behavioural Physiology. He discovered in collaboration with his teacher, Oscar Heinroth, the phenomenon of 'imprinting' in animals. A gosling or a duckling, will at a critical age, follow the first moving object it sees. Normally, it is its mother, but it can as well be any other creature.

From geese, Lorenz moved on to other birds and from there to humans. In 1963 he published a book on human behaviour '*On Aggression*' which proved to be highly controversial.

Nikolas Tinbergen who took his doctorate from Leiden studied insects, fish and birds and showed that learned behaviour was as important as instinctive behaviour in animals. He has recently extended his studies to man, who, he says, will kill his own kind without any feelings, whereas animals desist from killing their own kind, especially if the victim shows signs of surrender or appeasement.

Nikolas comes from a gifted family. His elder brother, Jan shared the first Nobel Prize in Economics with Ragnan Frisch in 1969.

The prize this year, $112,804, goes to the three scientists in equal shares.

Literature

The prize for literature went to Patrick White (61) a British-born Australian writer "for an epic and psychological narrative cut, which has introduced a new continent (Australia) into literature".

White was born in England in 1912 when his parents were in Europe for a two-year stay. At six months he was taken back to Australia where his father owned a sheep station. At 13, he was sent to school in England and did not return to Australia until after World War II.

White distinguished himself as a writer in the thirties. His first novel *Happy Valley* was published in 1939. His second, *The Living and the Dead* followed in 1941. White made his name with *The Tree of Man*, which is described by the Swedish Academy as "an epically brood and psychologically discerning account of a part of Australian social development, in the form of two people's long life together and struggle against outward and inward difficulties".

Among his other books may be mentioned *Riders in the Chariot*, *Vors*, *The Vivisector* and *The Eye of the Storm*. His last two books, *The Vivisector* and *The Eye of the Storm* were declared by the Academy to be "among his greatest feats both as to size and to frenzied building up of [tension". Prize amount $120.000 (Rs. 9 lakhs)

Peace

The Peace Prize was awarded jointly to Dr. Henry Kissinger, US Secretary of State and Le Duc Tho, leader of the North Vietnamese delegation to the Vietnam Peace Conference. The award had been made for their joint contribution to the deescalation of the Vietnamese War. Le Duc Tho is reported to have turned down the Prize. Kissinger has accepted it.

Peace prizes have very often excited controversy. The 1973 award has become the most controversial award ever given. It is held in many quarters that Dr. Kissinger or Le Duc Tho, for that matter are not the type or their work of the category that merits a prize for peace as Nobel conceived it

Two Norwegian members of the Nobel Peace Prize committee, were the first to register their protest by resigning from the committee. They declared that the committee's choice was a serious mistake.

Economics

The prize for Economic is not one of the original Nobel prize It was instituted by the Swedish National Bank in 1968.

The prize for 1973 was awarded to Prof. Wassily Leontief (66) of Harvard University, USA. Leontief is the fifth economist to win the prize.

The Swedish Academy said "Professor Leontief is the sole and unchallenged creator of the input-output, technique. This important innovation has given to economic science an empirically useful method to high-light the general interdependence in the production system of a society.

The input-output analysis describes the interdependence in a production system as a network of deliveries between the various sectors of production. It is used extensively in forecasting and planning for the short-run and long-run.

Prof. Leontief was born in Leningrad on August 5, 1906. He received his Ph.D. in Economics from the Berlin University in 1928 and became the Professor of Economics at Harvard in 1946. His famous "input-output" tables appeared in 1936. A comprehensive version of his tables was published in 1941. An extended version appeared 10 years later.

Prize amount $122,000.

NATIONAL AWARDS

Arjuna Awards

(Arjuna Awards for outstanding Sportsmen, 1972).

Athletics Vijay Singh Chauhan; Badminton Prakash Padukone; Ball Badminton - Jayamma Srinivasan; Billiards - Satish Mohan; Boxing - Hav. Chandgaya Narayanan; Cricket - B. S Chandrasekhar and Eknath Solkar; Golf - Anjani Desai; Hockey - Michael Kindo; Kabaddi Sadananda Shetye; Rifle Shooting - Udayan Chinubhai; Volleyball Balwant Singh: Weightlifting - Anil Kumar Mondal; Wrestling - Prem Nath.

Awards for scientists

The Indian National Science Academy has announced the following awards in June 1973.

The Srinivasa Ramanujam Medal (1974) for Mathematics: Prof. Harish Chandra, Institute of Advanced Study, Princeton, New Jersey.

The Shanti Swarup Bhatnagar Medal (1974) for Engineering; Dr. A. N. Khosla.

The Sunder Lal Hora Medal (1975) for Biology: Prof. L. S. Ramaswami, Rajasthan University.

The Meghnad Saha Medal (1975) for Chemistry: Prof. T. R. Govindachari, Director, CIBA Research Centre, Bombay.

The K S. Krishnan Memorial Lectureship (1975): Dr. A. P. Mitra, Chief of the Radio Science Division, National Physical Laboratory, Delhi.

The Academy also admitted as Fellows Dr. A. Ramachandran, Secretary of the Department of Science and Technology, Prof. C. N. R Rao, Prof. of Chemistry, IIT, Kanpur and Dr. H. K. Jain of IARI, New Delhi.

Magsaysay Award

The Magsaysay Awards were instituted in 1958 to honour the memory of Ramon Magsaysay, President of the Philippines, who died in an air cash in 1957.

The awards were given in recognition of service rendered to the people, in the fields of public service, community leadership, journalism, literature, art and international understanding.

The award consists of 10,000 dollars. a gold medal and a certificate citing the service rendered.

Indian Receipients

1958	Acharya Vinoba Bhava
1959	C. D. Deshmukh
1961	Amitabha Choudhry
1962	P. P. Narayanan (an Indian born Malayan), Mother Teresa
1963	Dara N. Khurody Tribhuvandas K. Patel Varghese Kurien
1965	Jaya Prakash Narayan
1971	Dr. M. S. Swaminathan
1974	M. S. Subhalakshmi

M. S. Subhalakshmi won the award n 1974 "for pursuit of artistic excellnce". The citation said, "As a girl of n in the South Indian Cultural Centre f Madurai, Subhalakshmi, began accomanying her celebrated mother's singing. n enchanting voice, hard work, exacting iscipline, character and humility to learn rom everyone, made her, at the age of 7, a soloist in her own right".

Rafi Ahmed Kidwai Memorial Awards

These awards were instituted in 1956 by the Indian Council of Agricultural Research for promotion of agricultural Research The value of the award is Rs. 10,000

Seventeen Scientists have been given the award so far (1957-1973). The 1974 receipients are the following.

Dr. S Y. Padmanabhan, Director, Central Rice Research Institute, Cuttack (Plant pathology); Dr. A. M. Khan of the Aligarh Muslim University, Aligarh (Nematology); Dr. B. P. Ghildyal of the G. B. Pant University of Agriculture and Technology, Pantnagar (Agricultural Physics), Dr. S. M. Sircar, Director, Bose Institute, Calcutta (Plant physiology); Dr. S. Z Qasim, Director, National Institute of Oceanography, Panaji, Goa (Fisheries); Dr. J. V. Bhat of the Indian Institute of Science, Bangalore (Microbiology); and the late Dr. S C. Sen, former Sugarcane Chemist, Rajendra Agricultural University, Bihar (Sugar technology).

NEHRU AWARD

The Nehru Award, was instituted in June 1964, in memory of Pandit Jawaharlal Nehru, by the Indian Council of Cultural Relations for outstanding contribution "to the ideal of world peace and brotherhood of man.

Receipients	*Year*
U. Thant (Burma)	1965
Martin Luther King (USA)	1966
Khan Abdul Gaffar Khan (Pakistan)	1967
Yehudi Menuhin (USA)	1968
Mother Teresa (India)	1969
Dr. Kenneth Kaunda (Zambia)	1970
Marshal Tito (Yugoslavia)	1971
Andre Malraus (France)	1972
Dr. Julius Nyerere (Tanzania)	1973

FILM AWARDS 1973

The national film awards scheme, instituted in 1953, covers three categories in the feature film selection, seven in the short and documentary film section award for the best children's film, 12 awards for technical excellence and acting and a special award called the Dada Saheb Phalke award for outstanding contribution to the Indian cinema.

Best Feature Film. (All Languages) *Nirmalyam* in Malayalam Producer and Director M. T. Vasudevan Nair.

Best Feature Film. (Regional Languages) *Gayathri*, Malayalam.

Best Documentary. *The Flame Burns Bright.* Produced by Films Division, India.

Best Actor. P. J. Antony, Kerala for his performance in *Nirmalyam.*

Best Actress. Mrs. Nandini, Karnataka for her performance in *Kaadu*, a Kannada film.

Best Child Actor. G. S Nataraj (Karnataka) for his performance in *Kaadu.* (Karnataka).

Best Film on National Integration. (Special Award). *Garam Hawa*, in Hindi.

Best Films in each Regional Language. *Mamta* (Assamese), *Asahani Sanket* (Bengali), *27 Down* (Hindi) *Abachurina Post Office* (Kannada), *Gayathri* (Malayalam), *Dikatra Parvati* (Tamil).

Flying Finn passes away.

Paavo Johannes Nurmi, the Flying Finn died on Oct. 3, 1973, at his home in Helsinki. Born in Turku, Finland on June 13, 1897, he took to running at the age of nine. Starting life as an errand boy, Nurmi joined the army in 1919.

He won seven individual Olympic gold medals and established more than 24 world records in long-distance running between 1921 and 1931. He was disqualified in 1933, at the age of 36, as a professional and could not join the Olympics any more.

His Olympic records are: *1920 Antwerp*—10,000 metres, 8000 metres cross-country (gold), 5000 metres (silver).

1924 Paris—1500 metres, 5000 metres, 3000 metres (team running) and 10,000 metres cross-country, all gold.

1928 Amsterdam—10,000 metres·

UNIVERSITIES IN INDIA STATE-WISE

State/Union Territory	*No. of Universities*	*Unitary*	*Federal*	*Affiliating*	*No. Institut-ions Deemed to be Univesities*
Andhra Pradesh	5	1	1	3	1
Assam	3	1	—	2	—
Bihar	8	2	—	6	1
Gujarat	7	2	—	5	1
Haryana	2	2	—	—	—
Himachal Pradesh	1	—	—	1	—
Jammu & Kashmir	2	—	—	2	—
Karnataka	4	1	1	2	1
Kerala	4	1	1	2	—
Madhya Prdesh	10	1	1	8	—
Maharashtra	10	3	2	5	1
Meghalaya	1	—	—	1	—
Orissa	4	1	—	3	—
Punjab	4	1	—	3	—
Rajasthan	3	1	—	2	1
Tamil Nadu	4	2	—	2	—
Uttar Pradesh	14	7	—	7	1
West Bengal	7	2	—	5	—
Delhi	2	1	1	—	2
TOTAL	95	29	7	59	9

List of Universities and Institutions deemed to be Universities State-wise as on 1-5-1974

UNIVERSITIES:

University	*Location*	*Type*
Andhra Pradesh		
1 Andhra	Waltair	Affiliating
2 Andhra Pradesh Agricultural	Rajendra-nagar Hyderabad	Unitary
3 Jawaharlal Nehru Technological	Hyderabad	Federal*
4 Osmania	Hyderabad	Affiliating
5 Srivenkateswara	Tirupati	,,
Assam		
1 Assam Agricultural	Jorhat	Unitary
2 Dibrugarh	Dibrugarh	Affiliating
3 Gauhati	Gauhati	,,
Bihar		
1 Bhagalpur	Bhagalpur	,,
2 Bihar	Muzaffarpur	,,
3 K. S. Darbhanga Sanskrit	Darbhanga	,,
4 Magadh	Bodh Gaya	,,
5 Mithila	Darbhanga	,,
6 Patna	Patna	Unitary
7 Rajindra Agricultural	Pusa (Samastipur)	,,
8 Ranchi	Ranchi	Affiliating
Gujarat		
1 Gujarat Ayurveda	Jamnagar	,
2 Gujarat	Ahmedabad	,,
3 Gujarat Agricutural	Ahmedabad	Unitary
4 M. S. University of Baroda	Baroda	,,
5 Sardar Patel	Vallabh Vidyanagar	Affiliating
6 Saurashtra	Rajkot	,,
7. South Gujarat	Surat	,,
Haryana		
1 Haryana Agricultural	Hissar	Unitary
2 Kuruksetra	Kuruksetra	,,
Himachal Pradesh		
1 Himachal Pradesh	Simla	Affiliating
Jammu & Kashmir		
1 Jammu	Jammu	,,
2 Kashmir	Srinagar	,,
Kerala		
1 Calicut	Calicut	,,
2 Cochin	Cochin	Federal
3 Kerala	Trivandrum	Affiliating
4 Kerala Agricultural	Trichur	Unitary
Madhya Pradesh		
1 Awadesh Pratap Singh	Rewa	Affiliating
2 Bhopal	Bhopal	,,
3 Indira Kala Sangit	Khairagarh	,,
4 Indore	Indore	Federal
5 Jabalpur	Jabalpur	Affiliating
6 Jawaharlal Nehru Krishi	Jabalpur	Unitary
7 Jiwaji	Gwalior	Affiliating

---

* Federal Universities include Central Universities (See p. 423, Supra)

8	Ravi Shankar	Raipur	„
9	Saugar	Sagar	„
10	Vikram	Ujjain	Federal

Maharashtra

1	Bombay	Bombay	Federal
2	Konkan Krishi Vidyypeeth	Dapoli (Ratnagiri Dt.)	Unitary
3	Mahatma Phule Krishi Vidyapeeth	Rahuri (Dt. Ahmedanagar)	Unitary
4	Marathwada	Aurangabad	Affiliating
5	Marathwada Krishi Vidyapeth	Parbhani	Unitary
6	Nagpur	Nagpur	Affiliating
7	Punjabrao Krishi Vidyapeeth	Ankola	Federal
8	Poona	Poona	Affiliating
9	S. N. D T. Women's	Bombay	„
10	Shivaji	Kolhapur	„

Meghalaya

1	North Eastern Hill	Shillong	Affiliating

Karnataka

1	Bangalore	Bangalore	Federal
2	Karnatak	Dharwar	Affiliating
3	Mysore	Mysore	„
4	University of Agricultural Sciences	Bangalore	Unitary

Orissa

1	Berhampur	Berhampur	Affiliating
2	Orissa Univ. of Agricultural & Technology	Bhubaneswar	Unitary
3	Sambalpur	Sambalpur	Affiliating
4	Unkal	Bhubaneswar	„

Punjab

1	Guru Nanak	Amritsar	Affiliating
2	Punjab	Chandigarh	„
3	Punjabi	Patiala	„
4	Punjab Agricultural	Ludhiana	Unitary

Rajasthan

1	Jodhpur	Jodhpur	„
2	Rajasthan	Jaipur	Affiliating
3	Udaipur	Udaipur	„

Tamil Nadu

1	Annamalai	Annamalai-nagar	Unitary
2	Madras	Madras	Affiliating
3	Madurai	Madurai	„
4	Tamilnadu Agricultural	Coimbatore	Unitary

Uttar Pradesh

1	Agra	Agra	Affiliating
2	Aligarh	Aligarh	Unitary
3	Allahabad	Allahabad	„
4	Banaras	Varanasi	„
5	Garhwal	Srinagar (Garhwal)	Affiliating
6	G. B. Pant Univ. of Agriculture & Technology	Pant Nagar	Unitary
7	Gorakhpur	Gorakhpur	Affiliating
8	Kanpur	Kanpur	„
9	Kashi Vidyapith	Varanasi	Unitary
10	Kumaon	Nainital	Affiliating
11	Lucknow	Lucknow	Unitary
12	Meerut	Meerut	Affiliating
13	Roorkee	Roorkee	Unitary
14	Varanaseya Sanskrit	Varanasi	Affiliating

West Bengal

1	Burdwan	Burdwan	„
2	Calcutta	Calcutta	„
3	Jadavapur	Calcutta	Unitary
4	Kalyani	Kalyani	Affiliating
5	North Bengal	Raja Ram Mohanpur (Darjeeling)	„
6	Rabindra Bharati	Calcutta	„
7	Visva Bharati	Shantiniketan	Unitary

Delhi

1	Delhi	Delhi	Federal
2	Jawaharlal Nehru	New Delhi	Unitary

Institutions Deemed to be Universities

Andhra Pradesh

Central Inst. of English & Foreign Languages	Hyderabad

Bihar

Indian School of Mines	Dhanbad

Gujarat

Gujarat Vidyapith	Ahmedabad

Maharastra

Tata Inst. of Social Sciences	Bombay

Karnataka

Indian Inst. of Science	Bangalore

Rajasthan

Birla Inst. of Technology & Science	Pilani

Uttar Pradesh

Gurukul Kangri Vishvidyalaya	Hardwar

Delhi

1	Indian Agricultural Research Institute	New Delhi
2	Jamia Millia Islamia	

SOBRIQUETS

Sobriquets are secondary names (including nicknames) that become attached to certain persons, places or things. Thus the Bank of England is known as the Old Maid of Threadneedle Street, and the *Malayala Manorama*, the oldest newspaper of Kerala as 'the Granny of Kottayam'. Bismark was known as the 'Man of Blood and Iron' and Florence Nightingale is famous as 'the Lady with the Lamp'. Tippu Sultan of Mysore is still spoken of as the 'Mysore Tiger'.

Some names, as H. W. Fowler observes, "have a large retinue of sobriquets" Rome, e. g. may be the Eternal City, the City of Seven Hills, the Papal City, the Scarlet Woman, the Scarlet Whore, the Empress of the Ancient World, the Western Babylon". (M. E. U. p. 546).

	Primary Names	Sobriquets
1	Aberdeen, Scotland	The Granite City
2	Africa	The Dark Continent
3	Amritsar, India	The City of the Golden Temple
4	Atlantic Ocean	The Herring Pond
5	Australia	The Land of the Golden Fleece The Land of the Kangaroo
6	Bab-el-mandab	The Gate of Tears
7	Bahrain	Island of Pearls
8	Bangalore, India	The Garden of India
9	Belgium	The Cockpit of Europe
10	Bombay, India	The Gateway of India
11	Broadway, New York	The Great White Way
12	Burma	The Land of the Golden Pagoda
13	Calcutta, India	The City of Palaces
14	Canada	The Land of Lilies The Land of Maple
15	Chicago, U S A	Windy City
16	Cochin, India	The Venice of the East
17	Cuba	The Pearl of the Antilles
18	Egypt	The Gift of the Nile
19	Finland	The Land of Thousand Lakes
20	Gibraltar	The Key of the Mediterranean
21	Guinea Coast	White Man's Grave
22	River Hwang Ho, China	The Sorrow of China
23	Ireland	The Emerald Island
24	Jaipur	The Rose Pink City
25	Japan	The Land of the Rising Sun
26	Kent, England	The Garden of England
27	Kerala	The Spice Garden of India
28	Korea	The Land of Morning Calm
29	Lhasa, Tibet	The Forbidden City
30	Madagascar	The Island of Cloves
31	Nilgiri Hills, India	The Blue Mountains
32	Norway	The Land of the Midnight Sun

33	New York, U S A	The Empire City The City of Skyscrapers
34	New Zealand	The Britain of the South
35	Oxford, England	The City of Dreaming Spires
36	Palestine	The Holy Land
37	Philadelphia	The Quaker City
38	Prairies of N. America	The World's Bread Basket
39	Prairies of N. Australia	The Never Never Land
40	Punjab, India	The Land of Rivers
41	River Damodar, Bengal	Bengal's Sorrow
42	San Francisco, U S A	The City of the Golden Gate
43	Scotland	The Land of Cakes
44	Switzerland	The Playground of Europe
45	Thailand	The Land of the White Elephant
46	Tibet	The Roof of the World
47	Tristan D Cunha	The World's Loneliest Island
48	Turkey	The Sick Man of Europe
49	Venice, Italy	The Queen of the Adriatic
50	Washington, D C, U S A	The City of Magnificent Distances

ANIMAL WORLD

The figures below show the maximum life span (in captivity), gestation, litters and incubation of some commonly known animals

Table 337

Name	*Life Span (Year)*	*Gestation (days)*	*Litters (Numbers)*	*Incubation (days)*
Ass	24	365	1	...
Black Bear	19	219	1-4	...
Buffalo	20	278	1	...
Camel	20	406	1	...
Cat (domestic)	15	53	1-6	...
Chicken	..	...	..	21
Chimpanzee	30	231	1-2	...
Cow	18	284	1	...
Deer	17	201	1-2	...
Dog	16	61	1-12	...
Duck	...	..	...	30
Elephant	47	645	1	...
Fox	8	52	1-8	...
Giraffe	10	425	1	...
Goat (domestic)	17	151	1-6	..
Goose	...	..	..	30
Gorilla	25	257	1	...
Horse	27	330	1	..
Kangaroo	19	42	1-2	..
Lion	15-29	100	1-4	...
Monkey	7	164	1-2	...
Mouse (field)	4	21	1-10	...
Pig	14	112	4-6	...
Pigeon	..	...	...	18
Rabbit	5	37	1-13	..
Rhinoceros	27	450	1	...
Sheep	13	450	1-3	...
Tiger	19	105	2-4	..
Turkey	..	..	..	26
Whale	37	365	1	...
Wolf	12	63	1-13	..
Zebra	20	365	1	...

Comparative Speeds of Animals

The measurements given below are for maximum speeds over approximate quarter-mile distances. Exceptions-which are included to give a wide range of animals-are the lion and elephant, whose speeds were clocked in the act of charging; the whippet, was timed over a 200-yard course; the cheetah over a 100-yard distance; man for a 15-yard segment of a 100-yard run; and the black mamba, six-lined race runner, spider, giant tortoise, three-toed sloth, and garden snail were measured over various small distances.

The table is given in descending order of speed

Table 338

Animals	*Speed (mph)*
Cheetah	70
Pronghorn antelope	61
Wildebeest	50
Lion	50
Thomson's gazelle	50
Quarter horse	47.5
Elk	45
Cape hunting dog	45
Coyote	43
Gray fox	42
Hyena	40
Zebra	40
Mongolian wild ass	40
Greyhound	39.35
Whippet	35.50
Rabbit (domestic)	35
Mule deer	35
Jackal	35
Reindeer	32
Giraffe	32
White-tailed deer	30
Wart hog	30
Grizzly bear	30
Cat (domestic)	30
Man	27.89
Elephant	25
Black mamba snake	20
Six-lined race runner	18
Squirrel	12
Pig (domestic)	11
Chicken	9
Spider (Tegenaria artica)	1.17
Giant tortoise	0.17
Three-toed sloth	0.15
Garden snail	0.03

Source: *Natural History*, March, 1974

THE WONDERS OF THE WORLD

(i) The Seven Wonders

The Seven Wonders of the World were originally listed by Antiper of Sidon a Greek in the Second Century BC. The seven wonders according to Antiper were:

(1) The Pyramids of Egypt, (2) The Hanging Gardens of Babylon, (3) The Temple of Artemis (Diana) at Ephesus, (4) The Tomb of Mausolus at Halicarnassus, (5) The Colossus at Rhodes, (6) The Statue of Zeus (Jupiter) at Olympia, (7) The Pharos (Lighthouse) at Alexandria.

Of the Seven Wonders enumerated by Antiper, only one—the Pyramids of Egypt—survive to this day, more or less intact. Fragments of two other wonders—The Temple of Artemis at Ephesus (Turkey) and the Mausoleum at Halicarnassus (Bodrun, Turkey) are traceable. The others have disappeared without a trace.

1. Pyramids of Egypt. These royal tombs, which housed the dead Pharaohs of Egypt, are about 70 in number and lie on the west side of the River Nile beginning at Gizeh, opposite Cairo and extending south for some 60 miles or so. They represent 1,200 years of Egyptian history, the earliest of them being erected not long after 3,000 BC and the latest, a little later than 1,800 BC.

The Pyramids referred to by Antiper, are three—all built by Pharaohs of the Fourth Dynasty. They are, the Pyramids of Khufu or Cheops, Kha-f-Ra or Khefreu and Menakaure or Mycerinus.

The Great Pyramid at Gizeh is 480 ft. in height and contains about 2,300,000 blocks of stone, each weighing around $2\frac{1}{2}$ tons. These are put together with surface joints, so perfectly cut, as to rival the accuracy of modern commercial optics. **The Pyramid at Cheops** is 461 ft. high, 746 ft. square at the base and covers nearly 15 acres.

2. The Hanging Gardens of Babylon were near the Euphrates River, in the palace of King Nebuchadnezzar, 60 miles south of the present City of Baghdad, and not far from the eastern border of the Syrian Desert of Northern Arabia. The terraced gardens, planted with flowers and small trees, with fountains and refectories interspersed, were 75 to 300 feet above the ground. Water was stored in a reservoir on the top terrace and was piped down to the gardens. They date from about 600 BC.

3. The Temple of Artemis (Diana), in Asia Minor at Ephesus, an ancient but now vanished city on the east side of the Aegean Sea, south of Smyrna, was built in the fifth century BC by the Ionian cities, as a joint monument from plans by the architect Ctesiphon. The building was of marble, 425×225 feet and the roof was supported by 127 columns of Parian marble each 60 feet high and each weighing about 150 tons. In 356 BC, the temple was burned by Herosratus, a crank who wanted notoriety.

4. **The Tomb of Mausolus, King of Caria,** in Asia Minor was at Halicarnassus, on the eastern side of the Aegean Sea opposite Greece. It was built of marble about 352 BC, by Queen Artemisia, the widow and was remarkable for its beauty and its magnificent interior. It was destroyed by an earthquake.

5. **The Colossus at Rhodes** was a brass statue of the Greek Sungod Apollo, 70 cubits (about 109 feet) high, erected by Charles of Lindus at the port of the City of Rhodes on the island of Rhodes in the eastern part of the Mediterranean Sea off the coast of Asia Minor north of Alexandria. It took 12 years to build cost 300 talents (Rs. 7½ lakhs), was completed about 280 BC and was thrown down by an earthquake. There it lay on the ground until 672 A.D. when the Turkish Government, having seized Rhodes, sold the statue and it was broken up.

6. **The Statue of Zeus (Jupiter)** was in the valley of Olympia, province of Elis, 12 miles or so inland from the west coast of the southern peninsula of Greece, which anciently was called the Peloponnesus.

The statue, begun by the Greek sculptor Phidias after he had been banished from Athens in 432 BC was of marble encrusted with ivory and the draperies were of beaten gold. The bearded god was in a sitting posture, with an olive wreath on his head. In his right hand was the figure of Victory; in the left, a sceptre.

7. **The Pharos of Alexandria,** a white marble lighthouse or watch-tower on the island of Pharos, in the port of Alexandria, Egypt, was completed by King Ptolemy Philadelphus 265-247 BC. The island had been joined by Alexander the Great to the mainland of Egypt by a causeway when he founded Alexandria. This lighthouse about 600 ft. in height was built by a Greek architect Sostratus of Cnidus and was the first of its kind in the world. The science of lighthouse constsuction called Pharology, started with this lighthouse. Pharos, simply means a beacon and even today the French word phare meaning lighthouse, reminds one of the old Pharos of Alexandria.

(ii)

OTHER WONDERS OF THE WORLD

The Sphinx, near Gizeh in Egypt is a great wingless crouching lion hewn out of solid stone, 172 5 feet long, and 66 feet high. Between the two extended paws is a granite altar with inscriptions apparently indicating that it was built in the Fourth Dynasty, possibly 3750 BC.

The Great Wall of China, built in the Third Century BC, extended along the northern frontier of the country, from the northern part of the Gulf of Pechili, on the Yellow Sea, north of Peking, in a zigzag course, to Syning, on the border of Turkestan.

The wall which has crumbled into heaps in many places was, at Kalgan 17 feet, 6 inches thick and 16 feet high made of two face walls of large brick, filled between with earth and stones. On the Chinese side, the face wall is carried up to form a parapet 3 feet high, and on the Mongolian side the parapet is 5 feet high.

There is nothing formidable about the cross-section of the Great Wall Compared with the many city walls of China it is a modest affair. The walls of the Tartar City of Peking, for example are 40 feet high and 60 feet thick at the base. Its length of 2550 miles however is unique.

Stonehenge, is an assemblage of huge shaped stones in 3 circles, one within another, on Salisbury Plain, about 90 miles, southwest of London, England. The outer circle is 100 feet in diameter, the next within is 75 feet in diameter, the circle inside that one has a diameter of 40 feet. Extending around the outer circle is a deep trench 333 feet in diameter. The stones of the outer circle, originally about 30 in number, average 12x6x3 feet, fastened in couples by blocks fixed across the tops. The stones in the inner circles are smaller. The stones date back to Celtic-Cymric time. The name 'stonehenge' is a corruption of stan-hengest (stone stallion).

The Catacombs at Rome were the sepulchres of the early Christians, and consisted of more than 40 groups of labyrinths, or galleries and chambers, covering 615 acres, sometimes, extending 5 storeys (70 feet) below the surface of the ground.

The Circus Maximus, at Rome, built 605 B.C., by King Tarquin and rebuilt and enlarged by Julius Caesar some years before the birth of Christ, was 312 feet high, 1,875 feet long and 625 feet wide. It then held 150,000 spectators, but the capacity was increased to 385,000 in the Fourth Century AD. The place was used for games and for horse and chariot races.

The Coliseum, or Colosseum, at Rome, one of the largest amphitheatres in the world, was begun by the Emperor Vespasian and finished by the Emperor Domitian, 82 AD. In 238 A D. a fourth storey was added. The ruins still stand. The building, elliptical, was 615x510 feet, and the floor of the arena was 281x176 feet. The walls were of stone; the seats, marble; 50,000 persons could sit and 20,000 could stand. The cost was 10,000,000; crowns (Rs. 450,000,000). The work of construction was done by 12,000 slaves from Jerusalem. Wild animals were kept in dens under the floor. Thousands of persons, including early Christians, perished in combats with lions and tigers. Gladiators also fought there.

The (Church) Mosque of St. Sophia, at Constantinople, was built as a Christian cathedral by the Roman Emperor Justinian, 531-538 AD, in the form of a Greek cross, 269 x 143 feet with a flattened dome 180 feet high, set in a cluster of cupolas and minarets. The brick walls are lined on the inside with marble plundered from Greek temples. The Sultan of Turkey, Mohammed II, turned the cathedral into a mosque in 1453 AD.

The Leaning Tower of Pisa, is one of the so-called wonders of the Middle Ages. It is a round, 8-storey bell-tower and was built of marble, in 1154 AD; it is 1o8 feet high, and the top is 16 feet out of the perpendicular. There are other leaning towers at St. Moritz, at Ems at Ulm, at Asinelli and at Garisenda.

The Porcelain Tower of Nanking was built in that ancient capital of South China in the early part of the 15th century. It was an octagonal 8-storey tower, 261 feet high. The Taiping revolutionists destroyed it in 1853.

Angkor Wat, along with Angkor, the ancient capital of Cambodia, is still magnificent though in ruins. Its original name was Nagara Thom or Nakhon Thom. The walls of the city which are 30 feet high enclose an area of 2 sq. miles. Angkor Wat or Nakhon Wat lies to the south of Angkor City, and is a splendid temple with three Javanese towers. The temple and the city testify to the spread of Indian culture in south-east Asia.

The Taj Mahal, Agra

The Taj Mahal, popularly called The Taj, is a masterpiece of architecture that easily takes its place among the Wonders of the World. It is a mausoleum built by the Mughal Emperor Shah Jehan over the tomb of his wife, Empress Mumtaz Mahal. Its construction was started in 1631 and completed in 1653.

The Taj marks the high water mark of Indo Persian architecture. It is a domed structure rising above a basement, which itself rests on a great platform or terrace. The keynote of the general layout of the complex lies in the formal garden, within the inner court, with a central tank and canals. The garden consists of 4 flower-beds surrounded by shallow canals studded with fountains, all radiating from the central tank like the arms of a cross. The Taj occupies, the northern extremity of this garden, with the River Yamuna at the back.

In shape, the Taj is an irregular octagon with four long and four short sides. Graceful minerats rise from the four corners of the basement. Four magnificent *chhatris* or kiosks, surround the majestic central dome, which is estimated to weigh 12,192.56 metric tons.

The whole structure is done in pure white marble. with the inner walls or partitions, exquisitely ornamented and inlaid with precious stones.

The salient features of the Taj are the broad and superb construction, pure and soft outlines, and luxuriant execution which make it an unparalleled creation of beauty and splendour. The whole complex is so planned, that its apparent organic unity does not obscure the individuality of any unit.

LOOKING BACK—1974

INDIA

January

1. India and New Zealand issue a joint statement calling major powers to treat Indian Ocean as a peace zone.

5. The Council of Scientific and Industrial Research prepares a plan to convert coal into oil. First pilot plant to be set up at the Central Fuel Research Institute.

6. Railways draw up plans to switch over largely to steam traction to cut down consumption of diesel oil.

10. The strike in Indian Airlines Corporation by its employees called off.

13. Mrs. Gandhi lays foundation stone at Narora in Uttar Pradesh for the fourth nuclear power station.

Gujarat student agitation takes violent turn leading to police firing; army moves in.

14. Indo-Soviet oil collaboration proposal signed.

23. India and Sri Lanka reiterate the demand that Indian Ocean should be left as a zone of peace.

February

7. Gujarat Governor dismisses four State Cabinet Ministers who earlier had sought the Chief Minister's resignation.

9. President's rule imposed in Gujarat following the Chief Minister, Mr. Chimanbhai Patel's resingnation. Assembly suspended.

10. Army opens fire on food rioters in Ahmedabad.

16. Army moved out of Ahmedabad city.

19. India and the US reach agreement on disposal of US-held rupees in regard to PL 480 and other aid programme.

22. Pakistan and Bangladesh recognise each other unconditionally.

27. Railway budget imposes Rs. 138.38 crores in fresh imposts on freight and passenger charges.

28. The Finance Minister, Mr. Chavan, imposes new levies, to net Rs. 186 crores, for Centre and Rs. 36 crores for States, leaving a net deficit of Rs. 125 crores in a budget of Rs. 9,000 crores for 1974-75.

March

1. Cong.-CPI alliance gets absolute majority in Orissa Assembly elections.

Congress gets aboslute majority in UP poll.

3. Demand raised for dissolution of Gujarat Assembly; four killed in Gujarat in police firing.

14. India acquires 74 per cent of shares in ESSO.

15. Gujarat Assembly dissolved President's rule imposed.

18. Trouble starts in Bihar, and State-wide demonstrations, two killed, 23 injured in Patna on opening day of Assembly price rise protest; the Searchlight office and printing press burnt by demonstrators.

Petroleum Minister informs Rajya Sabha-oil struck in the first well of Bombay High.

19. Trouble spreads to entire State of Bihar; 10 killed, 31 injured in police firing.

27. Sheikh Abdullah demands return to pre-1953 status to Kashmir.

28. The Food and Agriculture Minister, Mr. Fakhruddin Ali Ahmed, announces Government's decision to scrap 'wholesale trade in wheat' policy.

April

9. India, Pakistan and Bangladesh reach agreement on amnesty to POWs and repatriates of more Pakistani nationals stranded in Bangladesh.

8. Mr. Jaya Prakash Narayan leads silent procession in support of student agitation against price rise in Patna. Bihar Assembly prorogued.

12. Eight killed, 12 injured in Gaya police firing on student-led 'Paralyse the Government' demonstration.

14. Mr. Jaya Prakash Narayan forms new organisation to "save democracy."

15. National Co-ordination Committee of Railway Unions decides to launch nation-wide strike from May 8.

20. Tamil Nadu Assembly adpots by an overwhelming majority a resolution on State Autonomy.

21. Repatriation of Pakistani prisoners of war begins. 734 prisoners of war sent to Pakistan through Wagha border post.

22. Sikkim Congress gains absolute majority in first general election to the State's 32-member Assembly.

23. Railway unions serve 14-day sttike notice on Railways.

26. Supreme Court upholds educational rights of minorities.

28. Prime Minister Indira Gandhi leaves for Teheran.

29. India and Iran express the need for close economic co-operation between the countries of South East Asia to promote economic progress, peace and stability.

30. Lt. Gen. Niazi and the last batch of prisoners of war leave for Pakistan.

May

1. Indo-Iranian pact on setting up a joint shipping company and expansion of Madras Oil Refinery signed.

2. Mr. George Fernandes and other Railway Union leaders arrested under the Maintenance of Internal Security Act.

India secures Rs. 226 crores ($ 282 millions) Special Drawing Rights from the International Monetary fund to meet higher import oil bill.

7. 24 MLAs of Bihar Assembly resign and demand dissolution of Assembly.

8. Railwaymen begin strike all over India.

14. India beat Australia 3-2 in East Zone Davis Cup final at Calcutta.

18. India carries out first underground nuclear explosion at Pakhran in Rajasthan; experiment a great success.

23. Canada suspends all nuclear aid to India.

26. President Giri appeals to railwaymen to end strike.

28. 20-day-old Railway strike called off. Mr. George Fernandes and other leaders released.

June

2. A million-strong demonstration staged against dissolution of Bihar Assembly in Patna.

5. Supreme Court holds the view that dissolution of an Assembly is not a hurdle in the election of President.

21. Sikkim Assembly calls for integration of Sikkim's economic and social development with India's planning.

22. Ordinance promulgated for amending Essential Supplies Act 1935 providing for deterrent punishment to hoarders and blackmarketers.

27. Katchativu Island transferred to Sri Lanka; agreement signed in Delhi.

July

1. Mr. F. A. Ahmed nominated for Presidency by the ruling party.

4. Chogyal of Sikkim signs the Bill passed by Assembly which embodies the constitutional framework of Sikkim.

6. President signs two Ordinances to freeze dividends and additional wages in order to curb inflation.

17. President Giri signs Ordinance providing for compulsory deposit for higher income groups.

23. Sikkim Congress Ministry sworn in.

August

1. Mr. Jaya Prakash Narayan launches 'no tax campaign' in Bihar.

2. Air India pilots go on strike; services grounded.

20. Mr. F. A. Ahmed elected as President defeating the Opposition candidate, Mr. Tridib Kumar Chaudhary.

21 Supplement Railway budget introduced to collect additional revenue to the tune of Rs. 140 crores.

27. Mr. B. D. Jatti elected Vice-President.

28. Parliament approves 34th Constitutional Amendment to extend protection to States' land ceiling and tenure laws.

31. Import licence scandal erupts in Parliament.

September

7. Constitution (35th Amendment) Bill to give representation.

to Sikkimese in Indian Parliment passed.

13. India and Pakistan reach agreement on restoration of communications and travel facilities.

17. Air India lays off 1,000 workers following pilots strike and lockout.

17. Ordinance promulgated to detain smugglers under MISA.

18. Eight top smugglers, including Haji Mastan and Sukur Narain Bhakia, taken into custody.

19. India-USSR sign a protocol on economic and technical programme.

21. President promulgates Ordinance for take-over of 103 sick textile mills.

October

2. Shah of Iran arrives; suggests the need for the formation of an economic inter-relationship in the northern part of Indian Ocean; also assures India that Iran will not support Pakistan in case of a war.

5. Mr. V. K. Krishna Menon dies.

10. The Prime Minister, Mrs. Indira Gandhi, announces reshuffle of the Union Council of Ministers resulting in the exit of two Cabinet Ministers, one Minister of State and three Deputy Ministers.

15. India and Pakistan resume telecommunication link between the two countries, snapped during the 1971 war.

19. President issues Ordinance to amend law on poll expenditure.

Congress Working Committee elects Mr. D. K. Barooah as interim Congress President.

27. Air India pilots call off strike.

28. Indo-U S Joint Commission on Economic, Scientific and Educational Co-operation signed by the Foreign Minister, Mr. Chavan and the U S Secretary of State, Dr. Kissinger, in Delhi.

28. Indo- U S communique on Dr. Kissinger's visit supports Simla Agreement; hails India's affirmation of peaceful uses of nuclear know-how and says President Ford will visit India in 1975.

India concedes Davis Cup to South Africa.

November

1. P.M - J P.meeting for 90 minutes-meeting a failure. No dissolution of Bihar Assembly, P. M. says; agitation to continue, J. P.

Air India lock-out ends.

4. J. P. Sarvodaya workers injured as Police lathi charge a procession aiming gherao of the Secretariat and Ministers-thousands arrested.

8. Andre Malraux is Nehru award-winner for 1972.

11. Tulmohan Ram, and Yogendra Jha arrested by CBI in Pondicherry Import Licences Scandal Case; bailed out-contact man S.M. Pillai turns approver, implicates several M. Ps.

15. The Home Minister, Mr. Brahmananda Reddi, apologises on Lok Sabha floor for police using lathis against J. P. and causing injuries to him.

16. President's order bars court remedy to smugglers held under MISA.

18. Pakistan plays host to CENTO naval exercises off Karachi, described as "largest ever maritime military exercise" in Indian Ocean with units grom U S (9), U K (9), Iran (10) and Pakistan (20)- 48 war ships in all for "midling 1974".

28. CBI- Tulmohan Ram collusion in Licence Scandal Case alleged in Lok Sabha by Mr. A. B. Vajpayee.

December

1. Mrs. Sucheta Kripalani dies.

2. Speaker clears Ministers of privilege charges in licence scandal case; permits debate on Tulmohan Ram.

5. Congress suspends Tulmohan Ram.

7. Indo-Pakistan trade embargo lifted.

10. Mr. Morarji Desai cancels Satyagraha; accepts PM's offer to show CBI documents in the Licences Case; Lok Sabha returns to comparative normalcy.

15. India and Bangladesh reach an agreement on rail link.

16. Speaker Dhillon rejects privilege move against the Railway Minister, Mr. L. N. Mishra.

17. India and Bangladesh sign protocol switching over to trade in free currency.

18. Lok Sabha rejects Opposition motion to remove Mishra from the House.

19. Parliament passes Poll Expenses Bill.

31. India and Portugal re-establish diplomatic ties.

WORLD

January

1. Libya increases oil price to $18.76 a barrel.

2. About 75,000 workers laid off in U K following adoption of 3-day week due to fuel crisis.

17. Mr. Nixon announces Egypt and Israel have reached accord on forces disengagement.

23. Withdrawal of Israeli forces from Egyptian territory begins.

24. Mr. Mohammadullah elected President of Bangladesh.

February

4. U K and U S reach agreement on Diego Garcia.

11. Libya nationalises American oil companies.

22. Pakistan recognises Bangladesh.

27. Coup in Ethiopia; Emperor Haile Selassie deposed.

28. Britain goes to polls.

March

2. U K in political crisis with no party securing majority in the House of Commons.

3. 345 killed in worst air disaster near Orly (France) involving a Turkish airliner (D C 10).

18. Seven oil producing States, meeting in Vienna, agree to lift the five-month old oil embargo on U S.

20. Port Said reopened for world shipping.

22. The 17 nation nonaligned meeting at Algiers denounces the U S decision on Diego Garcia.

29. Mr. Nixon agrees to give Watergate documents to the congressional inquiry body.

April

4. The Organisation of Petroleum Exporting Countries (OPEC) decides to create a special fund aid to poor nations.

May

7. The West German Chancellor Mr. Willy Brandt, resigns in connection with spy case.

The U S Senate refuses to grant $29 million to enlarge the U. S. naval base at Diego Gacia.

16. Marshal Tito elected President of Yugoslavia for life.

31. Israel and Syria agree on disengagement of forces.

June

2. Jigme Singye Wangchuk crowned as King of Bhutan.

10. The U N Security Council votes for Bangladesh entry into the U N.

27. Mr.Nixon in Moscow for summit talks. Mr. Bhutto arrives in Dacca.

28. The U S and the USSR sign three co-operation pacts.

29. Bhutto-Mujib talks on sharing of assets, liabilities, trade and repatriation of Pakistani nationals fail.

July

15. The Cyprus armed forces overthrow President Makarios in a coup.

19. Congressional lawyers recommend impeachment of Mr. Nixon for his role in Watergate.

22. Greece and Turkey accept U N Security Council call for a cease-fire.

28. The Judiciary Committee of the U S House of Representatives recommends Mr. Nixon's impeachment.

August

8. Mr. Nixon decides to step down from the Presidency.

9. Mr. Gerald Ford becomes 38th President of the U S following Mr.Nixon's resignation.

20. Mr. Nelson Rockefeller named U S Vice-President.

September

8. President Ford pardons Mr.Nixon for his offences in the Watergate scandal.

10. Portugal grants independence to Guinea-Bissau.

18. President Ford says the U S will increase its food aid to establish an international system of food reserves.

The U N General Assembly admits Bangladesh, Guinea-Bissau and Grenada as new members, bringing its total membership to 138.

21. In Honduras hurricane kills 8,000 persons.

26. India's External Affairs Minister Mr. Swaran Singh, says that India has no plan to make nuclear weapons.

30. Gen, Spinola resigns as President of Portugal and the Armed Forces Chief of Staff. Gen Francisco de Costa Gomes succeeds him.

The U.N General Assembly rejects credentials of the South African delegation.

October

11. Labour Party wins Britain's general election with thin majority.

24. Mr. Bhutto in Moscow; Mr. Kosygin, Soviet Prime Minister, asks Mr. Bhutto to improve relations with India.

November

3. U.K to end Simonstown agreement with South Africa.

4. Sri Lanka Indians form 'Sri Lanka Socialist Party'.

7. Davis Cup awarded to South Africa.

16. World Food Conference ends at Rome; agrees to form World Food Security Council.

23. The Palestinian Liberation Organisation (PLO) given permanent observer status at the UN.

24. Mr. Ford and Mr. Brezhnev agree to limit arms race.

25. U Thant, former UN Secretary-General, dies.

December

2. Mr. Takeo Miki is new Japanese Prime Minister.

3. UK agrees to US expansion of Diego Garcia base.

7. Archbishop Makarios returns home.

Students start building U Thant's tomb in the Rangoon University campus.

11. Martial law and curfew imposed in Rangoon after disturbances following the removal by troops of U Thant's body from the university campus mausoleum built by students.

13. The US Attorney General Mr. William Saxbe, named Ambassador to India.

The UN General Assembly adopts 'Economic rights' Charter.

15. Malta becomes a Republic.

The US House of Representatives approves funds for Diego Garcia.

18. India becomes a member of the 36- member Food Security Council.

21. The founder-member of the British Communist Party, Rajani Palme Dutt dies.

23. Portugal lifts travel curbs on Indians.

25. Portugal withdraws its case against India on Goa from the UN.

SPECIAL FEATURE

MALTHUSIAN COILS
OR
THE PROBLEM OF POPULATION

MALTHUS
WORLD POPULATION PROBLEM
POPULATION AND FOOD
FAMILY PLANNING
THE CRUX OF THE PROBLEM
TABLE A
TABLE B

MALTHUSIAN COILS OR THE PROBLEM OF POPULATION

I MALTHUS

Towards the close of the 18th century, in 1789 to be precise, Tomas Robert Malthus (1766-1834) then an unknown English clergyman, published an essay on THE PRINCIPLE OF POPULATION. This booklet made him famous overnight and earned for him a permanent place in the history of human thought. What made the unknown Rev. Malthus so famous? He did not make any sensational discovery. Neither did he produce a ponderous *magnum opus*. He merely said that population tends to outrun the means of subsistence. This dictum was not the outcome of any longdrawn research or statistical calculations. It was a simple rule of thumb principle, derived from rough and ready estimates. Nevertheless, it had a lasting impact on human thought.

Malthus was the first man in history who identified the growth of population as a day to day problem like food and co-related the two. Until then, no one had thought of population as a problem at all. The eternal procession of briths and deaths was a natural phenomenon, a necessary biological process, whereby the species perpetuated itself. There could be nothing wrong in that.

The Lord gave and the Lord hath taken away; blessed be the name of the Lord. This was the attitude of the illiterate as well as the enlightened classes to questions of population, namely, births and deaths. Population was God's business, if anybody's. Malthus, though a godly man, refused to shove aside population as God's business. He saw it as a human problem, human in all its aspects. So long as men fathered children, they had a responsibility to feed them. But men were reckless, especially the poor. They went on breeding children. They assumed-to use the language of an Indian proverb-that the God, who opened the mouths (of the children) would provide the prey for them, just as He did for other animals. This was sheers imbecility.

There was, of course, nothing original in this idea. It was a commonplace of the times. It went home, because Malthus warned that dire consequences would follow, if this simple fact was ignored. The macabre prognostications of Malthus, startled many into taking a second look at population. Slowly, the truth sank into men's minds. Population was a human problem, a problem, which men harboured in their very homes. The problem called for a human solution too-not the gruesome solutions, nature offered. But, a full awareness of the problem was yet to come. Such an awareness lay a long way off. It came, in fact, two centuries later-in our own times.

When Malthus brought out his book, Britain was in the midst of a population explosion. No one realised, it, not even Malthus. That of course, was not his fault. The concept of a population explosion is a 20th century refinement. Malthus could not be expected to anticipate it.

In all probability, the burgeoning population of his days must have struck Malthus as ominous and stirred him into thinking of population potentials. He saw population as turbulent river, rushing down the gorges of time and carrying everything before it. Only natural disasters, wars, pestilences and famines, which wiped out population by thousands, could halt its headlong course, from time to time, But Nature, 'red in tooth and claw' should not be left to settle population questions. Its methods were far too crude and inhuman. Men could handle the problem humanly, if they cared. Every man must exercise proper restraints in breeding, and so order his family that there would be enough food for them. This was the human solution to the problem, as Malthus saw it.

At a time, when men knew nothing at all about population trends and little or no statistics were available, Malthus saw, what others failed to see-the practical cosequences of a growing population. With uncanny insight, he gauged the terrible potentialities of the problem, not only for Britain, but for all mankind as well. This is the unique contribution of Malthus to human thought.

The Malthusian Theory

Malthus argued that population tends to outrun the means of subsistence, because population increased in gometrical progression-2, 4, 8, 16, 32, 64 etc, while food production increased only in arithmetical progression-1, 2, 3, 4, 5, 6, 7 etc. Therefore, there was always a gap between population and food production and the gap went on widening. Mankind, in other words, was always running short of food. The poorer sections bred large families, much larger than those of the richer classes. This added fuel to the fire. An already short food situation, thus became critical. And the poor suffered the worst. Starvation and suffering became their inevitable lot.

How did this unequal race between population and food supply end? What was, in fact, the solution of the problem? Malthus thought that Nature settled the problem in its own way. It killed off the surplus population, periodically and thus restored the balance Natural calamities like floods and earthquakes, pestilences like the great plague, wars and famines were the main agencies, through which Nature equalised popualtion and food supply. This sort of equalisation would not do. Man should bring about the equalisation himself. He had to reduce his reproductive rate in line with the food supply. This was the Malthusian prescription.

Food Supply

The Malthusian conclusions were immediately challenged. It was argued that all this talk about geometrical and arithmetical progressions was sheer hyperbole. Population and food production increased in different proportions but the gap was never so wide as to be unbridgeable. After all, with every mouth God sent a pair of hands. If it population meant more mouths to it also meant more men to work.

In any case, there was no cause for alarm. For one thing, extensive virgin lands lay open for cultivation in the New World. They could produce tons of extra food. For another, the lands in the Old World could be made to yeild more by improved techniques. "Nature, a mother kind alike to all, still grants her bliss at labour's earnest call." And so on the arguments went.

Socialism

William Godwin* (1756-1836), one of the earliest socialist thinkers of Britain, joined issue with Malthus, on behalf of the poor. Godwin repudiated the Malthusian claim, that the poor were themselves to blame for their poverty. He said that the poor suffered, not because they bred big families, nor because, of food shortage. They were the victims of an unjust social order, the evil *laissez-faire* system. *Laissez-faire* preached the doctrine, "Everyman for himself and the devil take the hindmost". The poor were the hindmost in society and the devil took them. That was what happend. The solution to the problems of the poor lay in a socialistic order of society, which would ensure an equitable distribution of wealth. But first, we have to give up 'the good old rule, the simple plan, that he takes who has the power and he keeps who can'. "So distribution should undo excess and each man have enough".†

II WORLD POPULATION PROBLEM

Population Explosion

Population figures show the relation between birth rates and death rates or the net balance of births over deaths, in a given period. If birth rates and death rates equalise, the population remains steady. If births exceed deaths there is an increase in population. When the rate of increase is excessive, we speak of a population explosion.

Viewed on a global scale, the problem is stupendous. As Rafael M. Salas, Executive Director of the UN Population Fund puts it, "it took all of recorded history until 1830, for the world to acquire its first one thousand million human beings. It took only 100 years between 1830 and 1930 for the second one thousand million Only thirty years, between 1930 and 1960 for the third. Today (1974), the world's population stands at around 3700 million. If current trends of fertility persist, it could double by the year 2000 AD".

Growth Rate

The over-all growth rate in world population is around 2.5 per cent annually. This means that every month this year (1974) about ten million babies will be born throughout the world. At the same time, about 3 million persons will die. The result will be a world population increase of 7 million in an year. Human population, in other words, will be swelling by about 200,000 each day or by about 2½ persons each second. This growth rate is, on the face of it, excessive. A 2.5 per cent annual growth will double the population in about 30 years. At 2.8 per cent, the population would double in just over 24 years. At 3 per cent it would double in 23 years. And so on. The greater the growth rate, the shorter the doubling time.

---

* William Godwin is better known to us as the father of Mary Wollstonecraft, wife of the poet, Shelley, Mary Wollstonecraft is remembered as the author of the now famous book *Frankenstein* (See General Information supra)

† Shakespeare, quoted by U.N.

At our present rates, the coming generation will be double the number of the present generation and the generation after next, double the number of the coming generation - a Malthusian geometric progression, with a vengeance. Ironically, the rate of increase is lowest in the developed countries, which can best afford to assimilate such increases and highest among the developing countries, which can ill afford to take on any extra population. In developed countries like the US, the Soviet Union, the Western countries and Japan, the rate is below the global average, somewhere between 1 and 1½ per cent, with some of them going below 1 per cent. South Asia, excluding Japan, shows a general growth rate of around 2 per cent. South America, Africa and the countries of the Middle East have between 2.5 and 3 per cent, while the countries of Central America top the show with plus 3 per cent.

The Third World

Of the total world population, developed countries account for about a third, the rest two-thirds are in the developing countries or to use the popular phrase, the Third World. The countries of the Third World form a motely crowd, scattered over four continents, Asia, Africa. the Americas and Australasia. They are in varying stages of development, with vastly differing backgrounds and problems. But they share a common trait. The great majority of their people are poor.

This means, that two thirds of the new babies will be from poor parents and about one half from extremely poor parents. That is to say, out of the 70 million babies born this year, roughly 45 million will be those of poor parents, who cannot afford to provide them. The responsibility for maintaining these children falls on the world at large. This makes the population problem of the Third World an international problem and an international responsibility.

Demographic Transition

The transition from a high population growth rate to a low growth rate is called the Demographic Transition. A high population growth rate implies high birth rate (fertility) and a high death rate (mortality). A low growth rate shows a low birth rate (fertility) and a low death rate (mortality) A demographic transition occurs, when a population group changes from high fertility and high mortality to low fertility and low mortality.

In the developed countries of the West, mortality rates began to decline by the mid-nineteenth century. Fertility rates also started falling, but at a lower rate. Over a period of many decades, these countries underwent a transition from high fertility and high mortality to low fertility and low mortality, without the net population rate never becoming excessive.

In the developing countries or most of them, mortality rates started falling rapidly three or four decades ago. But fertility rates continued to remain high. It is this imbalance, that has led to the population explosion in these countries. So, while the developed countries. have achieved the demographic transition already, the developing countries have not yet reached the threshold of transition.

A demographic transition is a population trend which is started by factors, at present unidentified. It is a slow and gradual process. The first step in transition, appears to be a fall in mortality rates, while fertility rates remain constant. This leads to an increase in population. Fertility rates then begin to decline. This halts the increase in population. The interval between falling mortality and falling fertility will change from country to country and from epoch to epoch. At present, we have no means of gauging, what the average interval is. It may take two decades or five, just one generation or three. But the transition once started will go on, on its own, with mortality rates falling further and fertility rates following suit. The important thing to note is that, if a demographic transition has started, with falling mortality rates, falling fertility rates will take over and halt any excessive increase in numbers.

Standard of Living

What is the secret of population growth? Although, we have broken the genetic code, we are still groping in the dark on this question. All that we have been able to find out from demographic studies is that the standard of living holds the key to population growth. Against a background of affluent conditions, the growth rate slows down. Conversely against a background of indigence, growth rates quickens. As the UN says, "History has shown that birth only falls significantly, when the standard of living rises significantly for the majority of the people".

Standard of living is an amorphous concept, embracing a number of socio-economic factors – housing, clothing, food, income, employment, educational opportunities, medical facilities and all sorts amenities or comforts of living. The interplay of all these factors makes the population problem, truly formidable. Because, all these factors are inter-linked, there can be no lasting improvement in any one, without development in others. "The size, structure, rate of growth and movement of population are part of the fabric of social and economic development and must be considered alongside the rest." (Rafael Salas)

Among these factors, the single most important factor is food, or to put it more precisely, the nutritional level of the population, as a whole. Food plays a vital role in poulation trends. The introduction of a new food source, for example, can easily engineer a population explosion. The white potato was introduced in Ireland in 1750. In another 100 years, the population of Ireland nearly doubled. The Chinese population explosion of the 16th century, was related to increased use of corn, sweet potatoes and groundnuts. The recent introduction of enriched flour in Scandinavian countries was followed by a decrease in infant mortality and a proportional increase in population.

"Population, as a 'problem" says Tarzie Vittachi, Executive Secretary of the World Population Year "although it demands a global approach, presents itself in different dimensions, with different emphases and forms from region to region and from country to country. "But one common underlying fear permeates the whole world. "The fear is" to quote Salas "that the earths's resources will prove insufficient to support, ever-increasing numbers of people. "As Dr. Kurt Waldheim, UN Secretary General told the General Assembly in 1974 "Never before in recent decades, have world reserves been so frighteningly low. The production of enough food...... almost certainly represents, the largest single pressure on our natural resources.

U N Enters the Field

The UN became interested in population questions, far back, in 1946. Its first steps were hesitant and halting. It established a Population Commission on Oct. 3, 1946. Then for many years, it did nothing. In 1954, it moved into action and organised the World Population Conference in Rome. As the sixties opened, the UN came to realise the magnitude and seriousness of the problem. The censuses, which came out in the sixties, showed dramatic and unexpected rises in population in many developing countries. The Asian Countries called for special attention.

The UN called together an Asian Population Conference in Delhi in Dec. 1963. In 1964, the Economic and Social Council urged the UN to explore ways and means of expanding UN assitance to developing countries in the field of population. 1965, the Economic and Social Council called for the provision of advisory services and training facilities for workers, engaged in population activities. In the same year, a World Population Conference was convened in Belgrade. The following year, a General Assembly resolution asked the Secretary General to implement a work programme "within the limits of available resources".

In June, 1967, the UN Fund for Population Activities was set up. In 1969, the Fund was placed under the charge of the Administrator of UN Development Programme (UNDP). In 1972, the Fund was placed directly under the General Assembly and the Governing Council of the UN Fund for Population Activities (UNFPA) was entrusted with its administration. The UNFPA lent new momentum to UN activities. It designated 1974 as the World Population Year and capped it with a World Conference on Population at Budapest in Aug. 1974.

Objects of the Fund

The main objects of the Fund are: (i) improving knowledge and information on population trends and prospects; (ii) providing effective education in population and family planning and (iii) assisting national governments and other agencies, with funds or expertise to implement programmes of population control.

Statistics

Any policy of population control must be based on reliable knowledge of the make-up, growth and movement of population in the different countries of the world. But statistics of this sort are sadly lacking. It might be a matter of surprise for many, that even today, there are some thiry countries in the world, where no census of any sort, has ever been taken. Even among countries, where census operations have taken place, there are many that have no systematic registration of births and deaths. This makes it difficult to assess the growth of population during census intervals. Also, many of the censuses taken are found to be imperfect and unreliable. The first duty of the Fund is therefore to arrange for census, where no census has been taken and to see that future census and allied operations are carried out scientifically.

Research

Very little is known of the factors that control the growth of population. We now proceed on the general assumption that affluence tends to keep the population down while poverty sends it soaring high. We have now to identify the various factors in affluence or poverty that influence population and to gauge their comparative roles in population growth. This calls for extenrive and long-term research projects.

Population Poiicy

The UN Fund is to assist all states to evolve and implement population policies of their own. It is obvious that the population policy should be part and parcel of the general development programmes. But population polices, call for a long-term perspective in contrast to the short-term view of conventional five year plans. As Alan Chakley observes "Population dynamics, the winds of change that blow through the sex and age patterns of population are very slow acting." It will take to generations or half a century, at least, to see the impact of any programme on population. The development plans therefore, will have to be attuned to population policies, on a long range basis. Most developing nations, in a hurry, for quick results are impatient of such policies. This will not do. The mills of God grind slowly; they grind exceeding small.

III POPULATION AND FOOD

About 3½ million people or about 5 percent of all humans, that have ever lived inhabit the earth today-an awesome statistical testimony to the rapidity of human population growth, in the last few hundred years. The growth rate shows no sign of abating. At the present rate (2.5 percent per annum) humanity will double itself in thirty years. If the rate is maintained until the year 3000 there would be 10^{23} people on the earth. If we allow a weight of 100 lbs. per person, the total weight of mankind on earth in 3000 A.D. would be 10^{25} lbs. or the weight of the earth itself. This would be our reproductive performance.

Do we have a matching food production performance? Evidently not. Till the 1960's the population kept going ahead of food production. In the 1960's mainly on account of the Green Revolution, population and production increased at more or less the same rate. According to the U.N. Statistical Directory, world agricultural output increased by 27 percent during the sixties., while estimate of population showed a slightly higher percentage of increase. This was all right and looked promising.

In the 1970's the situation changed. The very first years of the seventies showed that human ingenuity was no match against Nature's vagaries. While the population continued to increase, food production sagged. According to the U. S. Department of Agriculture, per capita grain production in the world dropped by about 6 percent in 1972. It was the first drop in a decade. In 1972-73, almost all countries reported short falls The weather was the culprit everywhere. Insufficient snow cover, a late spring and drought followed by untimely autumn rains cut down Soviet production by about 30 million metric tonnes in 1972. In 1973, China reported a shortfall of 10 million metric tonnes. India wars short by 20 million, Indonesia by half a million and Bangladesh by 1 million. Burma, a leading exporter of rice and traditionally surplus in food, fell short by about 30 percent. As the F.A.O. pointed out, the developing countries fell behind, for the second time in succession in 1973, in their efforts to increase food production to match their growing populations. The position has not changed for the better in 1974 and does not promise to improve substantially in the near future.

"The world" says the U. N." is only just managing over the food problem. Basic foodstuffs are being produced in just sufficient quantities to maintain the same average production, per person as 20 years ago. "There is a fresh complication." The people of the world are tending to change their diet. Every time, there is a small increase in incomes in a country, the people demand more protein, especially meat" The old fleshpots of Egypt! This change in diet preferences has added to the general pressure on food supply, caused by the rising population figures.

A Grim Prospect

In a report entitled **Malthus and America** the Agricultural Subcommittee of the U.S. House of Representatives observed "During 1974, conservative estimates are that somewhere between 200 and 400 millions of our fellow human beings will stare starvation directly in the face. Over 10 million persons—most of them children five years of age and under—will perish, as a direct result of too little food to eat".

"Food production from the 3.5 billion acres, currently under cultivation, must be dramatically increased, if mass starvation of many of the world's citizens is to be avoided. Unless present trends in population growth and food production are significantly altered, a food crisis, that will have the potential to affect every one in every walk of life, will hit with more impact than the energy crisis of 1973-74 . . . The world food crisis will not disappear spontaneously or soon, and may be, never."

"The demand for food, like the demand for oil, metals, minerals and other resources is obviously going to skyrocket and that rocket is going to be fuelled by the fires of inflation and joblessness. A poor harvest in any major food producing country—the U.S., the Soviet Union, China or India—is sure to send economic shockwaves, not only through the food sector of the world's economy, but (as it fuels the fires of inflation) through its other sectors as well.

The Subcommittee warned the Americans, that just because, they are not short of food now, they cannot "afford to sit idly by, thinking that this problem does not affect" them. U.S. with 5 to 6 per cent of the world's population consumes 40 per cent of the world's resources. 'Shortages of land, water, fertiliser and energy could aggravate the food crisis and U.S. may find itself in the midst of the problem."*

Not so bad

As opposed to these foreboding predictions, an export study by the U.S. Department of Agriculture, points out that the situation is not so bad and not in the least, irredeemable. According to this study, the present food troubles started with a reduction in wheat acreage from 120 million acres to 81 million acres, by four major grain producing countries of the world—U.S., Canada, Australia and Argentina. "Had these four countries maintained the wheat area, they had in 1967 and 1968, yields obtained from 1969 to 1972, would have produced over 90 million tons of wheat."

World Population Tops 4,000 Millions

The world's population has topped 4,000 millions as it climbs more swiftly than experts forecast, a research body said here.

This figure of 4,000 millions was expected to be the population total at the end of this year. Experts had forecast a birth rate of 75 millions for the crowded planet. This figure has now been revised upwards to 90 millions.

The statistics were disclosed by the Environment Fund, a private organisation which has been compiling its figures over several months.

The Fund's results tend to confirm the view that the world's population has been consistently underestimated since 1945.

The statistics put the population of China at 909 millions instead of the 800 millions recently announced by Peking.

As for the United States, the population was listed as 217 millions as opposed to the normally accepted 212 millions.

The US Census Bureau has never taken into account the 5.3 millions people—mostly illegal immigrants—who were not included in the 1970 census—AFP.

Washington Oct. 17, 1974.

The study asserts that the world is far from running out of land for cultivation, since there is twice as much land available for farming, as is currently in use. The study also says that no definitive evidence can be found to support the claim of some metorologists, that the world is entering a period of prolonged bad weather or even a "new ice age". The study predicts that there will be huge food surpluses in rich countries and massive deficits in poor nations by 1985, unless "there is a serious re-evaluation of agricultural and food consumption policies in all parts of the world."

A projection for 1985 is that a continuation of present trends can result in a surplus of 51.9 million tons of food in surplus countries and a deficit of 47.6 million tons in developing countries. The study refutes the view that the world is

---

* A. P. Report d. Oct. 20, 1974.

IF PRICES GO UP

THERE IS ONE THING YOU CAN DO

not to buy more than
what you need.
Those who have money to waste
may buy things at any price.
But no trader can put up prices
on the encouragement of such
persons alone.
It is your purchase that
matters to him.
Defeat the unscrupulous trader.
Avoid 'shopping'
Buy only essentials.
When prices rise, don't panic
and buy more.
If you do, that is the surest
way of pushing up prices.

BUY ONLY WHAT YOU MUST

davp 74/1/9

edging towards a crisis of the type, predicted by Thomas Malthus, that soon the growth of poulation will outstrip food production**.

A Unique Production System

Though these two reports stress two different aspects, they disagree on one fundamental point, namely, the availability of extra land for food production. This is a question, on which the weightage of world opinion is against the findings of the Committee. This calls for explanation.

The report of the U.S. Agricultural Department is, of course, an academic exercise. It does not consider the practical problems of extending cultivation to uncultivated areas. The Soviet Union, under Kruschev embarked on an ambitious plan to bring extensive areas of virgin land under cultivation. We have no definite information on the success or non-success of this project. But we know that the Soviet Union imported wheat from U.S. in 1972 and 1973 and has contracted for further imports in 1974-75.

The fact is, that it is one thing to claim on paper, that extensive lands lie open for cultivation and another thing to cultivate them. The proof of the pudding, as they say, is in the eating. With the best recipe in the world and the best chef around, the pudding may yet fail to make the grade. Similar risks are very high in agriculture. We often make the mistake of assuming that agricultural production is like industrial production, which we may, increase or decrease at will. But industrial production is carried on under conditions which are within our control, while agricultural production, has to be carried on under conditions, many of which are beyond our control. This makes all the difference.

We use a special word for agricultural production—cultivation. This shows that agricultural production is a unique process and altogether different from other production operations. Farmers have to tend their crops from seed to seed, feed them with fertilisers, irrigate them with water, treat them for diseases and keep them protected, all the time, from pestiferous weeds and pestilential parasites. All these little things will have to be done at the proper time-neither too late nor too early. In fact, crop yields depend very much upon the timing of the operations. All these call for systematic care and attention. But, for all the care and attention, the farmers bestow on their crops, they can never tell how much they will get or if they will get anything at all.

The equation, more land = more food is deceptive in its simplicity. More land means more plants, more plants mean more greenery, more greenery means more photosynthesis, more photosynthesis, in due course, means more food. (See Part II, Biosphere). This is the intricate chain of events that lies behind this simple equation. This chain is regulated by sunlight, which the plants use as their cooking medium. We have no sort of control over this cooking process, which is basic process of food production. All that we can do is to adjust, alter or improve the enviornment, so that the maximum photosynthetic activity takes place and the maximum food potential is created. In short, the factory of agriculture is the wide open earth and its chief chemist, the Sun. The farmers who lord it ever, as their business, are nothing more than factory attendants.

** A. P. Report d. Oct. 22, 1974.

FOOD POTENTIAL

All food on earth originates in photosynthesis, whereby, the plants combine carbon dioxide and water to produce carbohydrates and other organic matter. It is estimated that about 200 billion tons of carbon are fixed in this way, every year. This amount of carbon will yield about 500 billion tons of carbohydrates. 500 billion tons of carbohydrates per year is equivalent to about 1.4 billion tons of sugar every day. Calculated at a rate of 4 million calories per ton of sugar, it will be seen that Nature provides for us enough carbohydrates to produce 700 times the calories, 3½ billion of us require*. It would therefore seem, that we have in Nature, more food resources than we would ever require.

But there are difficulties—plenty of them. To mention one, the major portion of photosynthetic products—anything from 50 to 90 percent—is produced in the sea, much of it, in the microscopic algae. We cannot get at these directly. The energy stored by the oceanic plant kingdom, comes to us through a long food chain, extending from the microscopic algae to big fish, and from edible

---

* It is assumed here that a person requires roughly 2500 calories per day. For calories, see *Dietetics, General Information, supra.*

Phone: 377 Gram: 'TRUST'

LION MATCHES

Sole Distributors:

THE KERALA MATCH SYNDICATE

P. B. No. 11
OTTAPALAM, KERALA

Always Insist on Lion Matches

KERALA STATE TEXTILE CORPORATION LTD.

(Subsidiary of Kerala State Industrial Development Corporation Ltd.)

A Governmet of Kerala Undertaking

"ASWATHI", XXX/1271, Alappat Cross Road, COCHIN 682016
Phone 33041 Grams: Texcorp
34424 Telex: 046-418
"TEXCORP-CN-418"

We Manage the following Mills and Plants:

1. ALAGAPPA TEXTILES (COCHIN) MILLS, ALAGAPPANAGAR
5. PARVATHI MILLS, QUILON
3. VIJAYAMOHINI MILLS, TRIVANDRUM
4. KERALA LAKSHMI MILLS, TRICHUR
5. TRIVANDRUM SPINNING MILLS LTD, BALARAMAPURAM
6. GOVERNMENT BLEACHING & CALENDERING PLANT & WARPING & SIZING UNIT, PAPPANAMCODE.

Particulars for 1974.

Total installed Spindles: 140284
Looms: 330
(30 automatic)

Production: Yarn: 52.35 Lakh Kgs.
Cloth: 92.70 Mtrs.
Value: Rs. 1167 Lakhs.
Sales: Rs. 1132 Lakhs.

Chairman: K. T. CHANDY *Technical Director:* S. SITARAMAN

seaweeds. Ultimately, all that we get now is about 66 million tons fish and about 700,000 metric tonnes of seaweed, out of a total of about 250 billion tons of oceanic carbohydrates.

It, therefore, turns out that even if Nature is as lavish in food resources as calculations show, the greater part of the food is either inaccessible to us or unsuitable for us. We have thus to fall back on land as our principal source of food and we have to get it the hard way --by cultivation.

Scope of Increased Production

It is estimated that, on an average, 1 acre of farmland and 1 acre of grazing land have to be worked, to provide food necessary for a single individual. The potentially total arable land in the world is estimated to be 7.86 billion acres. Of this, only 44 percent or some 3.43 billion acres is presently under cultivation. The remaining 56 percent represents degraded soils and untried virgin lands[**]. But these statistics are deceptive. In a number of important areas, practically all accessible arable land is already being cultivated. In other areas, the potential for expansion, namely bringing uncultivated land under cultivation, is severely limited by high costs, unsuitable soil conditions and progressively diminishing returns. Recent attempts by Soviet Russia to bring vast areas of virgin land under the plough do not seem to have been successful This means, that we can hardly improve upon the existing 3.43 billion acres, which works out at less than one acre per person. This is a precarious position.

THE GREEN REVOLUTION

However, agricultural production has entered a new phase, with the Green Revolution. Until the beginning of the 20th century. world agricultural development was associated with, what is called **extensive cultivation.** This meant, that in order to increase agricultural output, the area under cultivation was expanded. Large farms, rolling over many acres were opened in America, Australia, and other countries. Large farms led to mechanisation and agricultural machineries of all types came into vogue. Every agricultural process was mechanised from sowing to harvesting and world agricultural output increased phenomenally. It now looks, as if, extensive cultivation has reached the saturation point. With the Green Revolution, we have switched on to a different technique, called **Intensive cultivation.** This means increasing production per acre, by the intensive application of inputs. Small farms or holdings are ideal for intensive cultivation, whereas, they are taboo in extensive cultivation. Under extensive cultivation, farms below. 50 acres were unattractive. In intensive cultivation, farms may be as small as 5 acres. Agricultural production has thus turned from large scale farming to small scale cultivation.

With the further expansion of cultivated area, remaining a dubious proposition and alternative sources like sea farming offering limited possibilities "our best bet for the immediate future" as Arthur Galston of Yale says "would be improved production on existing farmlands." This possibility depends on the future development of a combination of three agricultural technologies. They are (i) better genetic strains of crop plants (ii) better attention to their nutritive need, so that their productive potential can be fully realised and (iii) better protection of crops from diseases and predators that tend to diminish the overall yield.

The advantage of hybrid genetic strains is best illustrated by the story of hybrid corn in U.S. In ten years, from 1933 to 1943, the introduction of hybrid corn put up the average yield of corn, from 22.6 bushels per acre[*] to 33.2. By 1963, when 95 per cent of all the corn was in hybrids, the yield had reached 67.6 bushels per acre.

The high yielding hybrids require heavy doses of fertilisers. As a result, the demand for fertilisers rose sharply in U.S. As against, 28,000 tons of fertilisers applied to corn lands in 1943, the quantity of fertilisers applied in 1963 rose to 810,000 tons.[*]

Well fertilised high yielding strains grow rapidly and are extremely succulent. They offer an alluring banquet for myriads of potential parasites, bacteria fungi, and insects of all sorts. In U.S., the estimated annual loss due to these pests, is about 11.2 billion dollars, in the field and 2 billion dollars in storage, the latter, mainly from rodents. Only pesticides can combat these losses and they call for heavy investments by the farmer.

Weeds present a problem of their own. They thrive better on the fertilisers than

---

[**] **Maurice F. Strong. Executive Director, U. N. Environment Programme.**

[*] 1 U.S. bushel = 0.9689 Br. bushel. 3.6743 Br. bushels = 1 quintal. short ton = 2000 lbs.

Higher and higher still - cheer the frenzied fans
"Garuda grows - and with him our plans
Across the land - in north or south
The sign is the same — Garuda for Growth
Rich or poor who save their chips —
The name "Garuda" adorns their lips

CTC
garuda

GARUDA —for your Tryst with Destiny

GARUDA CHIT & TRADING COMPANY PRIVATE LIMITED

Registered Office Bombay-400050 *Central Office* 115 D Mowbrays Road Madras 600018 the crops. It is a ticklish problem to destroy these weeds, without destroying the crops. But our agricultural technology has proved equal to the task. We have developed weedicides, which are selective enough to destroy the weeds, without harming the crop. But the costs are enormous.

At present, U.S. is spending between 2 and 3 billion dollars per year on pesticides, including weedicides. By 1975, it is estimated that the value of the pesticides will exceed the total value of the fertilisers. This appears to be incredible, for pesticides are applied in minute quantities, a few ounces per acre, while fertilisers are applied in massive quantities of so many kilos per acre. And yet, it is true, that pesticides cost the farmers, more than fertilisers. It is calculated that pesticides alone will cost the farmer, between 5 and 10 percent of the total value of the crop.

The Green Revolution has been a boon in many ways. At a time when the old methods of production proved insufficient to meet the growing needs of the population, Green Revolution has given us a workable solution. But the problems thrown up by it are far too many and the cost, far too heavy. In such a situation, it would appear, that it is cheaper and less troublesome to bring down population than to increase food production.

FAMILY PLANNING

One of the major objectives of the U.N. Fund is to encourage and assist all governments to provide all individuals in the community, with access to facilities for Family Planning. Family Planning therefore forms one of the major planks, in the drive for population control. It is encouraging to note that all the developing countries have co-operated with the U.N. in working out family planning programmes. Everywhere, family planning centres have been established to educate the population in methods of birth control.

Gimmicks

In some countries, the zeal to teach the untutored population, showed itself in fanciful gimmicks. India excelled in such gimmicks. Fully caparisoned elephants were led out to distribute condoms to the gathering crowds. The condoms were picked up by youngsters, who soon found a new use for them. They blew them up, into balloons. Somebody in India devised a symbol—the red triangle. This was hailed as a stroke of genius in publicity. But its vulgar associations only repelled the rural folk. Ultimately, family planning degenerated into open bribery.

Says Dom Moreas "All over India, cash incentives are offered to those who are vasectomised. The sums vary from about Rs. 60 in the north to Rs. 32 in Bombay". The joke is that the government insists that it is no bribery. It says, that the sum paid, is intended as compensation for any work days that the volunteer (the person, who offers himself for vasectomy, may lose. But the motivator, or in plain English, the tout, who brings a man in to be vasectomised, also receives payment—Rs. 10 per person in Bombay. What working days the motivator loses or how, has not been explained.

Khanna Study

The government of India was the first government, among the developing nations, to take to family planning seriously. The Khanna Study was India's first major field study in birth control. It covered 7 test villages, with a total population of 8000 people. It was initiated by the Harvard University and was financed jointly by the Rockfeller Foundation and the Government of India. It lasted 6 years and cost a million dollars.

According to Mahmood Mamdani, an Indian research scholar at Harvard, the Khanna Study was a fiasco.* The villagers were so hospitable to the visitors, that they did not want to hurt their feelings, even remotely. So, they took all the pills and all the advice that the Study Teams gave. They threw away the pills and forgot all about the advice. But they refrained from disclosing the truth, lest it should offend the visitors. The researchers were thus led up the garden path by the well meaning villagers. And the whole study turned out to be a wash out !

Of course, it is unfortunate, that studies of this sort, should end up this way. Such things can happen only in India, where a self-interested bureaucracy, supported by equally self-interested politicians, have set themselves up as the educators of the people. They take it for granted that the people of India are sunk in ignorance and superstition but forget that they are the descendants of a great

---

* See his book "*The Myth of Population Control*".

For small-scale industries

BIG-SCALE HELP at UNION BANK

Rs. 42 crores disbursed over 10,580 accounts (upto December 1973)

This is the kind of big-scale help we can give YOU! If you are an enterprising person going into small industry Or if you wish to expand the business you already have

If you want help in purchasing machinery or raw materials or in importing them

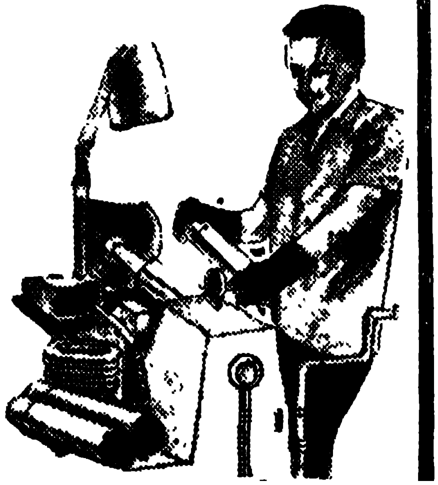
If you are looking for expert guidance in marketing your products Or even in accounting, e g book-keeping, preparing balance sheets, etc and in other technical matters In short .if you have ideas, and need finance to make them bear fruit—

Go to your nearest UNION BANK Branch

For over decade now Union Bank has been helping enterprising people —people like YOU—to start or expand small-scale units in:—

light engineering • lathe-operation • machine shop • block printing • oil presses • food processing • fruit canning • plastics • readymade garments • tailoring • auto parts • service stations • transport • spray painting • ceramics . electronics and many, many more!

The Bank has set up a Special Cell to study individual requirements and to help and advise accordingly

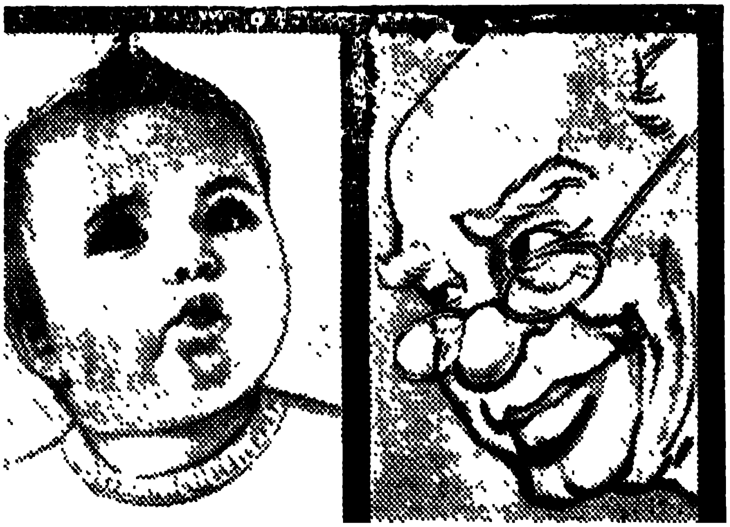


We Help You Help Yourself

UNION BANK OF INDIA
66/80 Bombay Samachar Street Fort Bombay 1

Nourishment counts

—for delightful doings
of young and old



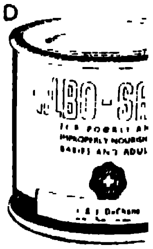
Albo - Sang makes your nutrition complete. Rich in calcium, phosphates minerals, essential nutrients and potent Indian herbs. Making it the ideal tonic for good health. For growing children, nursing mothers, older people, and everyone else in the family.

Albo- Sang reinforces ordinary food and stimulates digestion. Helps better absorption of food values. Also keeps the nerves relaxed.

Albo - Sang is available in powder and tablet forms. Tablets, being sugar - free, can be taken by diabetics also.

J. & J. DeChane
HYDERABAD

ALBO-SANG
keeps all the family
naturally healthy



nation, capable of higher things. The tape, that they blare out through the A.I.R. day and night fully bears this out. And they think, that the people swallow the whole stuff, hook, line and sinker. The real problem in India, today is, as Huxely asked, "who is to educate the educators?"

If Indian studies go this way, it is no wonder that Indian methods of education, fail equally miserably. Despite the fact, that Health Ministry reports claim every year that so many million births have been avoided, the Indian population shows no visible signs of going down. Says Peter Adamson "In India, which has one of the largest, fastest growing and poorest populations of the world, family planning failed to catch on. In nation after nation, the story was the same. Millions of dollars and thousands of experts had been pumped into family planning programmes, but after some encouraging starts, the overall birth rate has remained more or less constant, and in some cases, actually increased."

Faith and Experience

The general faith in family planning was so great, that in 1964, a leading family planner held up the **Loop** and declared, it would change the history of the world. And when the first results showed that women were not responding as eargerly as expected, efforts were stepped up. More experts, better administrative methods, more surveys, more catchy slogans, more efficient contraceptives and more effective mass communication programmes followed. The results were dismal. The history of the world did not change and it looked, as if, it was not going to change at all.

It now seems to be agreed, that family planning is not the answer to the problem of population. Family planning can and does help to reduce births, just as medical improvements can and do reduce deaths. But in the absence of all round economic development, family planning cannot create any lasting impact on population growth rates. This is now conceded by a number of specialists in countries like South Korea, Taiwan and Malaysia, where birth control programmes have succeeded. Similarly in countries like India and Pakistan, where no visible signs of success in family planning are noticed, it is being slowly realised that poverty is the real obstacle. As Peter Adamson puts it "So, the problem is not only **population** but **poverty;** the solution is not only **contraceptives** but **development.**"

Why Family Planning failed?

A great deal of research has been done in recent years to assess the reactions of the poor towards family planning. Malthus thought that it was the cussedness of the poor that led to large families. Since his time, opinions have changed. Most people came to think, that the poor did not really want large families but they did not know how to avoid them. It was on this assumption that family planning programmes were launched. The poor, it was believed, would respond readily to birth control and the problem of population will be brought under control.

Large Families

It was here that Family Planners erred. One of the first things, which recent research has come up with, is that the poor **did want** large families. In the villages, under the Khanna Study, the villagers frankly admitted to later research workers, that they did not approve of Family Planning, although they pretended to go along with the Khanna team. They wanted large families, because they were helpful. Most of the villagers were peasants, who wanted labour assistance, but had no money to hire workers. The children could provide such assistance. They look after cattle, help in sowing, weeding and harvesting, draw water for the family and take food out to the fields at midday. They take care of the toddlers and help in sewing, cooking and washing. These little helps, if evaluated in money, would come to a tidy amount. Besides, the children would support the parents in old age. And the greater, the number of the children, the easier will be their burden, when called upon to support the parents. All told, the children were an economic bargain. The cost of maintaining them was negligible compared to the benefits that the family derived from them.

As Mamdani explains "The agricultural classes live in a society, with a low level of technology, where survival as well as competition is conducted on the basis of numbers. Labour is the most important factor. For them, family planning means, voluntarily reducing the family labour force. This would mean, courting economic disaster".*

Everywhere in the world, in rural areas, large families are considered an asset, for more reasons than one. The sense of power, a family derives from numerical

---

* The Myth of Population Control.

THE CHAIN SETS A CHAIN REACTION...

Have you ever considered the consequences of alarm chain pulling? Perhaps not. When an alarm chain is pulled, it throws out of gear for some moments the entire life line of the Nation· Trains arrive late at their destinations. Many a passenger is inconvenienced and "misses the bus" and the Railways in their turn incur heavy losses. The alarm chain is an emergency device. If anybody misuses it for trivial reasons, please hand over the culprit to the authorities. You will be doing a national service.

Issued by the

CHIEF PUBLIC RELATIONS OFFICER

SOUTHERN RAILWAY, MADRAS-3

Interested in your security through savings....

ANDHRA BANK

PAYS YOU HANDSOME INTEREST

With Tax Benefits
Savings Bank, Recurring Deposits; Kiddy Bank Scheme;
Andhra Bank, has so many attractive Saving Schemes....
Whatever your Age or Vocation.
To make your future safer, and earnings handsome....
With Tax benefits.
Save for the future, make your money grow with....

THE ANDHRA BANK LTD.

Central Office: Sultan Bazaar, Hyderabad.

Branch in Kerala State

THE ANDHRA BANK LTD.
Ajay Vigar, M. G. Road, Ernakulam, Cochin-16

K. K. Narayan
CHAIRMAN

A Non-Nationalised Bank in the Nation's Service.

strength is itself an advantage, in competing for scarce natural resources, like water. Often, it is the largest family that rules the roost in villages.

Numbers also count in free societies, where all things go by vote. Dom Moreas points out, that in Kenyan politics, the numerical strength of a tribe is a matter of great importance. The tribes have proportional representation in the Kenyan parliament. The larger the tribe, the more elected members it has, to speak for it. A more or less similar situation prevails in India too, especially among the minority communities. The natural urge for the smaller social units in a democratic society is to grow in numbers, if not for dominance, at least for survival.

The desire to have large families is also conditioned by the high rate of infant mortality, that once prevailed in all the developing countries and still prevails in some. According to Dom Moreas, the desired number of children for most Kenyan couples in 1973 was six or seven. This desire, as one observer explained, was based on the high rate of mortality that prevailed in Kenya, formerly. Infant mortality in Kerala has dropped but that fact had not yet entered into the psychological set up of the rural population. Says Dom Moreas "It is the old story, brought over from Asia, the more children you had, the more you were likely to finish up with". The more you were likely to end up with, the better, you were. It meant more workers for the family, better security in old age for the parents and a higher social standing for all.

Procreation—a Recreation

Procreation, it is said, is the poor man's recreation. J. Robbins wrote in 1959* "When the sun goes down on an Indian village, the people are left in darkness. They have no books, no movies, no television. There is only one thing to do—to go to bed. There, they find their sole source of recreation and amusement, their brief escape from the hours of hard work of the day". At the root of Asia's problem of population, is copulation". There is a good deal of truth in this statement. In tropical countries, the hot humid weather does not invite sleep. Copulation follows as a consequential reaction. It provides relaxation and is a sort of lullaby to sleep. Viewed in this way, it is not poverty, nor poor government, nor land reform which is fundamental to the problem of population in Asia. It is sex, which exacts its biological penalties. The poor Asians sow the wind and reap the whirlwind.

Religion

All religions extol the begetting of children. Many lay it down as a sacred duty. Some religions go so far as to condemn as a deadly sin any wilful tampering with the process of procreation. The Old Testament tells us that God struck down Onam, because he resorted to what is now called **coitus interruptus.****

The Roman Catholic Church, for all its modernity, still frowns on birth control. The Church admonishes its members to abstain from sex, if they do not want children. They may have sex, during the so-called safe periods and catch Nature napping—that is, if they wanted sex but not children. Total abstinence, of course, is out of question—one may as well not Marry. And 'safe periods' are notoriously unsafe. The result is that many loyal churchmen breed big families and pray God to look after them. The inhibitions imposed by religion thus remain perpetual stumbling blocks in the path of the family planner.

Religious scruples, sometimes take funny turns. Signora Isabella tells us that when the Pope visited Bogota (the capital of Colombia) in 1968, all the women with I.U.Ds, came to the Family Planning Centre, to have them taken out. The day after the Pope left, they came back to have them re-inserted. There are, after all many, who play hide and seek with religion, in this manner. This is good for family planning.

---

* See book *Too many Asian.*

** Genesis 38: 9-10.

THE CRUX OF THE PROBLEM

The problem before the world today is, how to achieve a demographic transition in the developing countries. This means, that the present population trend in most developing countries, namely, high fertility and low mortality, must change into a trend of low fertility and low mortality. As we have seen, all developed countries have achieved this transition. Most of the developing countries have yet to.

Low Mortality

How is low mortality attained? It is generally believed, on quite plausible grounds, that low mortality in most developing countries, has come about as a result of better medical aids. No doubt,

SMALL SCALE INDUSTRIALIST ? ENTREPRENEUR ? CAN KSSIC HELP YOU?

RAW MATERIALS: Yes, we can, at controlled rates, provided what you require is iron, steel, non-ferrous metals, chemicals, copra and such other raw materials handled by us. Why not check availability in our raw material depots at Perumanoor (Cochin) and Ollur (near Trichur) ?

MACHINERY: Of course, we can, and that too on very easy hire purchase terms, with practically no security. Preference to those starting industry in industrial Estates.

FACTORY SHEDS: Sure, we can on economic rents, in the Industrial Estates. The vacant sheds, if any, in the Industrial Estates are for you; why not move in straightaway and start your industry? You can even own sheds, if you wish, on attractive terms. No rent for 5 years for unemployed technicians. Special concessions to those who occupy sheds in backward districts (e. g. interest-free loan from KFC. 50% reduction in rent, 10% of capital as grant etc)

CIVIL WORKS: All kinds of civil works, from design to execution, and erection of machinery undertaken on liberal terms anywhere in Kerala, provided you are particular about quality, speed and economy.

PRODUCTION AND SERVICE UNITS: We sell wooden furniture (household, office, school etc) survey and levelling instruments, prisms, optical instruments, rain coats, garments (including those ready-made for adults and children) porcelain goods, jigs, dies, tools, die-cast components, tiles, wire-cut bricks, straw boards (for industrial and office purposes) etc. We also undertake repair work, upholstry work (for cars, jeeps, etc.) and ascue treatment for timber.
SOLE SELLING AGENCY: Sole selling Agents for T. C. K. print master single Dummy printing press. Sole selling agency for products of S. S. I. sector, on nominal remuneration invited. For fuller information, please contact the Managing Director.

KERALA STATE SMALL INDUSTRIES CORPORATION LIMITED

(An Undertaking of Government of Kerala)

POST BOX No. 50, KOCHAR ROAD, TRIVANDRUM-1

Phone: 2767, 3585, 4158, 5062 Gram: 'SMALINCORP'

during the last half a century, we have achieved extraordinary progress in medicine and therapy. Antibiotics, preventive inoculation, eradication of wholesale killers like small pox, effective control of ther epidemics—all these have, without doubt, contributed to the decline of mortality, especially, infant mortality. But it is doubtful, if better medical care is the **primary and sustaining cause** of low mortality. Most experts are now agreed that the low mortality, observed in many developing countries, is a population trend, the first step in demographic transition.

Two American paediatricians, Roy F. Brown and Joe D. Wray, both specialists in Family Planning have made a special study of this phenomenon. They argue on very convincing evidence, that falling death rates (low mortality) are no more the result of medical care, than falling birth rates (low fertility) are the results of family planning.*

In the late 18th century, during the time of Malthus, England and Wales experienced a decline in death rates and a corresponding upsurge in population. Say Brown and Wray "True, there were larger hospitals, more clinics, and more health practitioners, but aside from vaccination against smallpox, the 18th century physician had little technology to offer his patients.'

Recently, a malaria eradication programme in Sri Lanka (Ceylon) was followed by a dramatic decline in death rate and an increase in population. But it is seen, that falling death rates in Sri Lanka, go back as far as 1905. From 1905 the decline in deaths accelerated sharply in the 1940s. This was before the malaria eradication programme was started. So, it is evident, that falling death rate in Sri Lanka had little to do with the malaria eradication.

What about antibiotics? Penicillin was first used in 1944. Other antibiotics became generally available after 1948. But death rates in the Western world had been falling since the 1850s. Between 1920 and 1949 death rates in 18 developing countries fell by about 35 percent. Clearly, this had nothing to do with antibiotics. Similarly, T.B. mortality was declining sharply, long before an effective anti-tuberculosis agent was developed in 1945.

Nutrition and Mortality

Improving the general nutrition of a population, has a much more marked influence on infant and early mortality, than increasing the number of physicians, which, by implication means, improving medical service. This has been proved in many studies.

It is noticed that in areas, where infant mortality is still high, malnutrition is widespread. Of the world's 60 million annual deaths, 30 million occur in children, under the age of 5 years and approximately one half, say 15 million results from malnutrition and infection. A study sponsored by the Pan American Health Organisation, showed that in 13 cities and 5 rural areas in Latin America, malnutrition was an associated cause in about 30 to 60 percent of all deaths, occurring to children under 5 years. When certain specific diseases were analysed-diarrhoea and measles, for example-more than 70 percent of deaths occurred in children, who were also suffering from malnutrition. Dr. Harold Frederiksen, studied data from 21 generally well-developed countries for the period, between 1950 and 1960. Examining the relationship between changes in birth and death rates, with other changes, he found that infant mortality declined with increased nutrition. It showed no reaction to improved medical facilities.

The Cornell University Health Care Project, among the Navahoa Indians, found that infant mortality following 'weanling diarrhoea' showed no decline despite planned medical care. "The well known weanling diarrhoea" according to Dr.Walsh McDermot of Cornell, "has a nutritional component, the precise role of which is unclear". The medical services did not know how to compensate for the nutritional mal-adjustment in weaning children. The result was, that infant mortality among the Navahoa Indians, which came in the wake of weanling diarrhoea, remained undiminished. A five year study of two Gautemalan villages, showed that a moderate improvement in nutrition of pre-school children, produced improvements in morbidity (sick rate)and mortality, equal to or better than those produced by an extensive and expensive medical care and public health programme, which took no account of the nutritional status of the children.

It seems apparent, that the supply of adequate foodstuff to people will reduce both morbidity and mortality, even in the absence of any medical input. Provided with a constant supply of nutritious food, each individual will develop health enough to fight infection and thus increase his chances of survival, without resort to medication. After all, in morbidity and

---

* See their book *The Starwing Roots of Population Growth.*

MOHAN'S INDUSTRIAL TRAINING CENTRE

(Affiliated to N. C. T. V. T., Ministry of Labour and Employment, Government of India)

KAYAMKULAM - KERALA.

Phone: 60

A well established Technical Training Centre for various Engineering trades

Main trades: **D/Civil, (I. T. I.). D/Mech., (I. T. I.) Fitter (I. T. I.) Radio and Television Mechanic (I. T. I.)**

Civil, Mechanical, Electrical, Radio, Automobile and Tele-Communication Engineering, Refrigeration and Air-Conditioning, Engineering and Electrician (I. T. I.) courses etc.

For details apply to Principal.

TRADITIONAL AND ARTISTIC KERALA HANDICRAFTS & HANDLOOMS

Distinction and charm to your home.
We welcome enterprise to an exciting
world of Artistry and beauty.
Kerala Handicrafts
Handloom Fabrics
Delightful, Elegant, Fine, Charming
Furnish your homes, your
offices with these Fabled Products.
Products of a Fabled Land.

RELEASED BY THE DEPARTMENT OF INDUSTRIES & COMMERCE

mortality, the question is how far they can be reduced. There is no question of eliminating either of them. It is thus a question of more or less sickness and death, in a given period. If we are well-fed, with our in-built biological defences in working order, there is no doubt, that sickness (Morbidity) will decline and the number of deaths (mortality)will go down.

Mortality and Fertility

A curious relationship is noticed between mortality and fertility. High mortality induces high fertility, while low mortality leads to low fertility. How this relationship operates is still a mystery.

An obvious explanation is, that as nutrition improves, early mortality comes down. As mortality rates decline, parents respond by having fewer children. Generally speaking,parents are not enthusiastic about family planning, when confronted by high infant or early mortality or the possibility of such a contingency. There is, in fact, clear evidence from Bangladesh, showing a direct relationship between the death of a child and the probability of a birth in the family in the subsequent year. A study in an Egyptian community showed that a mother, who has lost at least one child, will desire a larger number of children and will actually have more births, than women in the same community, who have lost no children. In the Philippine, too, a report shows, that total fertility is lower in couples who have lost no children. This phenomenon seems to be widespread. As Dr. Harold Taylor of the Population Council says "A basic dictum is that parents will not stop having children, until they believe that those, they already have are going to survive."

The nexus between this psychological factor and the biological act of reproduction is not clear. But such a nexus exists and operates all over the world. In the western countries, lower death rates were followed by lower births, long before contraceptive technology had developed and family planning services were available. In fact, lower births resulted, when even the publication of contraceptive information, was a crime punishable with imprisonment, in many countries of the west. It deserves to be specially noticed that "at a time, when national population policies were unheard of and few were concerned with the long term effects of population growth, birth rates were falling, almost as rapidly as death rates This can only be interpreted as indicating that thousands upon thousands of families wanted fewer children and somehow managed to attain their goals. Their decisions were so successful, that the aggregate effect, resulted in declines in fertility at national levels". (Brown and Wray)

The phrase 'somehow managed' shows that we are completely in the dark about the forces that control the growth of population. All that we can say is that some bio-psychic force is at work. Brown and Wray themselves, hazard only a guess. They say "Given the available methods of limiting family size, at the time, there must have been powerful and sustained motivating forces at work, to produce such unprecedented declines in fertility in large population groups. Such motivation, must have emerged from the everyday life situation, from the awareness of problems felt at the family level, such as 'having another mouth to feed.' This, for developed countries.

India's Food Needs

New York, Feb. 3

A marked improvement in the world food situation, notably in India, is reported by the United States and United Nations food experts.

India and Bangladesh are among the 12 countries listed by the experts as the most seriously affected nations by food shortages.

Mr. Richards Bell, a US Deputy Assistant Secretary of Agriculture, concedes that India has met its food requirements, largely through commercial purchases.

India's needs to meet the drought of 1974 were estimated by U S officials at 7.5 million tonnes. According to them, India has now commitments for about seven million tonnes, largely through purchases in world commercial markets.

India was now expected to receive 500,000 tonnes of wheat from the U.S. on concessionary terms.

According to U.N. food experts, the world faced a total food gap of 7.5 millions tonnes at the end of November last. This is now reduced to three millions tonnes.

They emphasise that much of the improvement has come from costly purchases on commercial markets, entailing, deferment of developmental needs with possibly serious consequences".

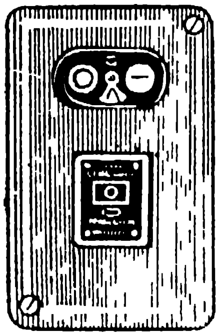
—PTI

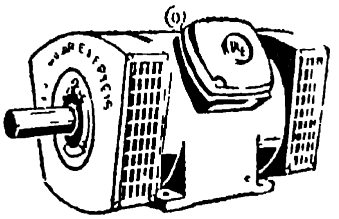
KIRLOSKAR
ELECTRIC MOTORS
UPTO 500 HP

LK STARTERS &
SWITCH FUSE UNITS

KIRLOSKAR
GENERATING SETS
1.5 K.V.A. TO 310 K.V.A.

Distributors
N. K. PODUVAL & CO.
KOTTAYAM-1
●
PODUVAL ENGINEERS
COCHIN-11
●
PODUVAL BROTHERS
TRICHUR-1





Trans-world maritime trade routes meet at SCINDIA

Every man's cliché—'The world's a small place', and most businessmen's thoughts. 'SCINDIA visits every major world port' East or West, North or South—SCINDIA ships your cargo to safety with her fast, efficient economic services!

Scindia ships ply through
INDIA-BANGLADESH
PAKISTAN-SRI LANKA
BURMA-WEST ASIA GULF-
RED SEA-WEST AFRICA
U K-CONTINENT POLAND-
SCANDINAVIA-
MEDITERRANEAN-ADRIATIC-
A R E-BLACK SEA-SINGAPORE
MALAYSIA INDONESIA-
HONG KONG TAIWAN-U.S.A
GREAT LAKES-CANADA-
MEXICO-CARIBBEAN-
SOUTH AMERICA
CENTRAL AMERICA.

SCINDIA

THE SCINDIA STEAM
NAVIGATION CO., LTD.,
Scindia House,
Narottam Morarjee Marg,
Ballard Estate, Bombay-1.
Telephone 268161
Telex 011-2205/011-3519

AGENTS IN ALL PRINCIPAL
PORTS OF THE WORLD

SISTA'S-SSN-110

In developing countries, too, a similar force seems to have been at work. In many developing countries, there were no family planning programmes at work, when birth rates started falling, in the wake of death rates. In these countries, the people were on their own, so to say.

Time lag

There is always a time lag between low mortality and low fertility-that is, between falling death rates and falling birth rates. In some countries the time lag is found to be shorter than in others. In Singapore, after World War II, mortality rates dropped and almost on their heels, birth rates also started falling. In Turkey, on the other hand, the time lag was much longer. In rural Turkey, death rates declined as a result of an extensive and comprehensive medical campaign, which included family planning services. But birth rates held steady for many years, in spite of birth control programme. Then, at last birth rates dipped, reducing the net population growth.

Dr. Harold Frederiksen, after analysing data from Ceylon concludes "There is such remarkable co-relation between previous levels of death rates and current levels of birth rates, that low death rates merit consideration, as contributing factors, if not pre-requistes for low birth rates, in the less developed as well as the more developed countries".

Development

Improved nutritional levels, however important, cannot be achieved in isolation. Nutritional improvement is but a part of a whole package of improvements. First, there is medical care, including birth control. Although, we have treated nutrition as an independent factor, it is in the last analysis, a necessary part of medical care. Secondly, nutritional status depends on the quality and quantity of food. This means greater food production. At a time like this, when the ghost of Malthus stalks the land, greater food production is the first unavoidable requisite. Thirdly, improved nutrition means a higher purchasing power for the people. Nutritional food is a costly business. Even Gandhiji's ascetic diet of goat's milk and sweet lime, would cost much more than the average Indian's diet of bowelfuls of rice. Higher purchasing power means all round economic development. This is what the U.N. means, when it says, that the answer to the problem of poulation is total development.

TABLE A

POPULATION

By Country and Continent.

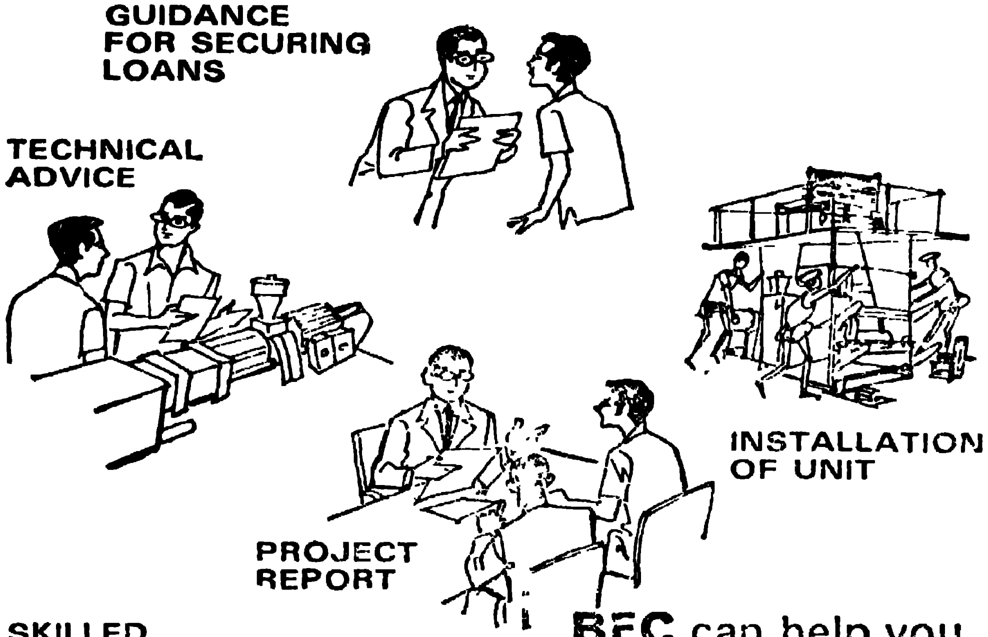
Data available with United Nations as of 1 July 1974

Continent & Country	*Latest official estimates (in Thousands)*
AFRICA	
1. Algeria	15,772
2. Angola incl. Cabinda	5,715
3. Botswana	646
4. British Indian Ocean Territory	2
5. Burundi	3,600
6. Cape Verde Islands	272
7. Central African Republic	1,637
8. Chad	3,791
9. Comoro Islands	275
10. Congo	1,150
11. Dahomey	2,869
12. Egypt	35,619
13. Equatorial Guinea	286
14. Ethiopia	26,076
15. French Southern and Antarctic Territories	*0
16. French Territory of the Afars and the Issas	81
17. Gabon	500
18. Gambia	493
19. Ghana	9,087
20. Guinea	3,702
21. Guinea-Bissau	486
22. Ivory Coast	3,750
23. Kenya	12,482
24. Lesotho	994
25. Liberia	1,571
26. Libyan Arab Republic	2,161
27. Madagascar	6,750
28. Malawi	4,791
29. Mali	5,276
30. Mauritania	1,200
31. Mauritius	851
32. Morocco	16,309
33. Mozambique	8,356
34. Namibia	574
35. Niger	4,304
36. Nigeria	71,020
37. Reunion	474
38. Rwanda	3,896
39. St. Helena ex. dept.	5

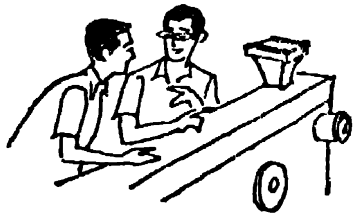
---

* 189 persons

WHAT DO YOU NEED TO START YOUR OWN PLASTIC MANUFACTURING UNIT?



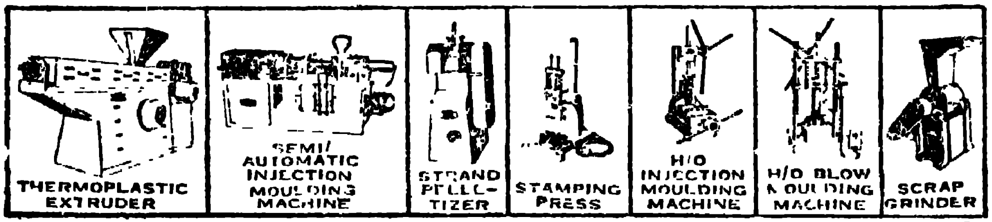
SKILLED PERSONNEL



BEC can help you in many ways

Write to **BEC** *today for assistance.*

BOOLANI ENGINEERING CORPORATION
402, Veer Savarkar Rd., Prabhadevi
Industrial Estate, Bombay-400 025
Tel: 452825 Gram: BECOPLAST.
Branch: 288, Linghi Chetty St., Madras-600 001
Tel: 24184 Gram: BOOLANIENG.


THERMOPLASTIC EXTRUDER
SEMI/AUTOMATIC INJECTION MOULDING MACHINE
STRAND PELLETIZER
STAMPING PRESS
H/O INJECTION MOULDING MACHINE
H/O BLOW MOULDING MACHINE
SCRAP GRINDER

ART-827

0.	Ascension	*1
1.	Tristan De Cunha	**0
2.	Sao Tome and Principe	74
43.	Senegal	3,780
44.	Seychelles	55
45.	Sierra Leone	2,861
46.	Somalia	2,941
47.	South Africa	23,724
48.	Southern Rhodesia	6,000
49.	Spanish Sahara	99
50.	Sudan	16,901
5 .	Swaziland	463
5..	Togo	2,117
53.	Tunisia	5,509
54	Uganda	10,810
55.	United Rep. of Cameroon	5,836
56.	United Rep. of Tanzania	14,377
57.	Tanganyika	13,969
58.	Zanzibar	403
59	Upper Volta	5,384
60.	Zaire	23,563
61.	Zambia	4,635
	TOTAL	387,425

AMERICA, NORTH

62.	Antigua	70
63.	Bahamas	193
64.	Barbados	239
65.	Belize	120
66.	Bermuda	53
7.	British Virgin Islands	10
8.	Canada	22,125
9.	Cayman Islands	11
0.	Costa Rica	1,846
1.	Cuba	8,749
2.	Dominica	70
3.	Dominican Republic	4,432
4.	El Salvador	3,864
75.	Greenland	48
76.	Grenada	95
77.	Guadeloupe	342
78.	Guatemala	5,540
79.	Haiti	5,200
80.	Honduras	2,781
81.	Jamaica	1,976
82.	Martinique	343
83.	Mexico	54,303
84.	Montserrat	13
85.	Netherlands Antilles	228
86.	Nicaragua	2,015
87.	Panama	1,570
88.	Canal Zone	44
89.	Puerto Rico	2,987
90.	St. Kitts-Nevis -Anguilla	64
1.	St. Lucia	107
2.	St. Pierre and Miquelon	6
93.	St. Vincent	89
4.	Trinidad and Tobago	1,064
95.	Turks and Caicos Islands	§ 6
96.	United States of America	211,438
97.	United States Virgin Islands	62
	TOTAL	332,103

AMERICA, SOUTH

98.	Argentina	24,286
99.	Bolivia	5,331
100.	Brazil	101,707
101.	British Antarctic Territory	*0
102.	Chile	10,229
103.	Colombia	23,331
104.	Ecuador	6,726
105.	Falkland Islands (Malvinas)	2
106.	French Guiana	52
107.	Guyana	757
108.	Paraguay	2,354
109.	Peru	14,912
110.	Surinam	403
111.	Uruguay	2,992
112.	Venezuela	11,293
	TOTAL	204,375

ASIA

113.	Afghanistan	18,293
114	Behrain	227
115.	**Bangladesh**	**71,614**
116.	Bhutan	1,035
117.	**Brunei**	**145**
118.	Burma	29,560
119.	China	†
120.	Cyprus	659
121.	Hong Kong	4,160
122.	India	574,216
123.	Indonesia	124,602
124.	West Irian	923
125.	Iran	31,645
126.	Iraq	10,413
127.	Israel	3,252
128.	Japan	108,346
129.	Jordan	2,555
130.	.Khmer Republic	6,701
131.	Democratic People's Republic of Korea	11,568
132.	Republic of Korea	33,177
133.	Kuwait	883
134.	Laos	3,181

1206 persons.

275 persons.

§ Excluding foreign personnel employed on the three United States bases in the islands.

* British population numbered 79 males in winter 1972.

† According to *The World Atlas* the Cartographic Institute (China), Peking, February 1972, the population in 1970 was "over 700 million".

Note: A newspaper report of 1972 claimed that according to official figures published by China, the population was 697,000,000 in 1970. This report has rather been officially denied nor confirmed by China since. UN Demographic Year Book published in 1973 estimates the population of China as 787,176,000 in mid, 1971-Editor).

Extract from the Journal of the Association of Medical Women in India, February, 1965 Page 29, Article on Pityriasis Versi Colour or Tinea Versi Colour

BY

Mrs. Dr. B. THOMAS
SKIN SPECIALIST
OSMANIA GENERAL HOSPITAL
HYDERABAD

TREATMENT

"The disease responds to simple treatment with mild fungicidals like Iodine, Salicylic in Alcoholic solutions or Sodium Hyposulphate in Glycerine or Alcohol. These applications are thought to effect a cure which takes several weeks. ***Another alternative I have tried in 100 cases and found 90 p. c. of cases with complete cure. An Ayurvedic Toilet soap (CHANDRIKA) prepared with herbal and root extracts has proved very effective.*** **The lather of the Soap is allowed to remain on the affected parts 8 to 10 minutes and then washed off with hot water**
The application of fungicidals is not required

My thanks to the manufacturers

'S. V. PRODUCTS,
IRINJALAKUDA, KERALA'

for the supply of half a dozen cakes of **CHANDRIKA SOAP** ***for trial.***

135.	Lebanon ...	2,126
136.	Macau ...	249
137.	Malaysia ...	10,319
138.	Maldives ...	104
139.	Mongolia ...	1,359
140.	Nepal ...	11,467
141.	Oman ...	565
142.	Pakistan ...	66,764
143.	Palestine ...	1,912
144.	Gaza Strip ...	356
145.	Philippines ...	41,248
146.	Portuguese Timor ...	611
147.	Qatar ...	100
148.	Saudi Arabia ..	6,036
149.	Sikkim ...	206
150.	Singapore ...	2,185
151.	Sri Lanka ...	13,249
152.	Syrian Arab Republic ...	6,890
153.	Thailand ...	39,787
154.	Turkey ...	37,933
	In Asia	31,408
	In Europe	2,967
155.	United Arab Emirates ...	179
156.	Democratic Republic of Viet-Nam ...	16,400
157.	Republic of Viet-Nam ...	19,367
158.	Yemen ...	6,062
159.	Yemen, Democratic ...	1,555
	TOTAL ...	2,111,360

EUROPE

160.	Albania ...	2,188
161.	Andorra ...	19
162.	Austria ...	7,487
163.	Belgium ...	9,757
164.	Bulgaria ...	8,619
165.	Channel Islands ...	124
166.	Czechoslovakia ...	14,578
167.	Denmark ..	5,025
168.	Faeroe Islands ...	39
169.	Finland ...	4,668
170.	France ...	52,360
171.	German Democratic Republic ...	16,980
172.	Germany, Federal Republic of ...	61,967
173.	Gibraltar ...	29
174.	Greece ...	8,950
175.	Vatican ...	1
176.	Hungary ...	10,449
177.	Iceland ...	212
178.	Ireland ...	3,029
179.	Isle of Man ...	56
180.	Italy ...	55,121
181.	Liechtenstein ...	21
182.	Luxembourg ...	353
183.	Malta ...	315
184.	Monaco ...	24
185.	Netherlands ...	13,504
186.	Norway ...	3,971
187.	Poland ...	33,600
188.	Portugal ..	8,564
189.	Romania ...	20,828
190.	San Marino ...	19
191.	Spain ...	34,857
192.	Svalbard and Jan Mayen Islands ...	3
193.	Sweden ...	8,150
194.	Switzerland ...	6,435
195.	United Kingdom of Great Britain and Northern Ireland ...	55,933
	England and Wales	49,174
	Northern Ireland	1,547
	Scotland	5,212
196.	Yugoslavia	21,101
	TOTAL	469,336

OCEANIA (Australasia)

197.	American Samoa ...	29
198.	Australia ...	13,26
199.	British Solomon Islands ...	17
200,	Canton and Enderbury Islands ...	
201.	Christmas Island (Aust) ...	
202.	Cocos (Keeling) Islands ...	
203.	Cook Islands ..	2
204.	Fiji ...	55
205.	French Polynesia ...	12
206.	Gilbert and Elice Islands ...	6
207.	Guam ...	9
208.	Johnston Island ...	
209.	Midway Islands ...	
210.	Nauru ...	
211.	New Caledonia ...	11
212.	New Hebrides ...	9
213.	New Zealand ...	2,96
214.	Niue Island ...	
215.	Norfolk Island ...	
216.	Pacific Islands ...	11
217.	Papua New Guinea ...	2,56
218.	Pitcairn Island ...	*
219.	Tokelau Islands ...	
220.	Tonga ...	92
221.	Wake Island ...	
222.	Wallis and Fatuna Islands ...	
223.	Western Samoa ...	152
	TOTAL ...	20,449

224.	UNION OF SOVIET SOCIALIST REPUBLICS	
	Union of Soviet Socialist Republic ...	249,74
	In Asia	62,674
	In Europe	187,075
	GRAND TOTAL	3,774,797

---

† Both Islands were uninhabited at time of census.

* 92 persons.

Enshrined in tradition

Mohmeaks

Black Knight

FINEST BLENDED 100 PURE GENUINE MALT

Whisky

MOHAN MEAKIN BREWERIES LTD. ESTD. 1855

INDEX TO ADVERTISERS

A

Advani-Oerlikon Pvt Ltd 26
Air-India 18
Aluminium Industries Ltd 582
Amarjothi Fabrics Pvt Ltd 592
Andhra Bank Ltd 794
Andhra Pradesh State Lottery 680
Arya Vaidya Prakasini Vaidyasala 628
Auto & Machinery Equipment Co 51

B

Bank of Baroda 688
Bank of India 58
Bharat Beedi Works Pvt Ltd 28
Bharat Electronics Ltd 588
Bharat Heavy Electricals 55
Bharat Retreading Co 620
Blue Mountain Tyres 602
Boolani Engineering Corpn 802

C

Canara Bank 668
Cardamom Board 47
Catholic Syrian Bank Ltd 664
Cochin Port Trust 666
Coffee Board 578
Coir Board 594
Corporation Bank Ltd 64
Corporation of Trivandrum 660

D

DAVP (If Prices Go Up) 786
DAVP (National Savings
Organisation) 38
Department of Information & Tourism,
Goa, Daman & Diu 640
Devon Plastics 606
Dhanalakshmi Bank Ltd 636
Department of Industries &
Commerce, Kerala 798
Directorate of Information &
Publicity, Karnataka 63
Directorate of Public Relations, AP 630
Directorate of Tourism, Govt. of
Tamil Nadu 24

E

Economic Times 12
Electronic Corporation of India Ltd 60
Emco Goa Pvt Ltd 618
ENCOS 626

F

Federal Republic of Germany 56
Finance (NSD) Department, Kerala 646

G

Garuda Chit & Trading Co Ltd 790
Govt. Soap Factory, Bangalore 10

H

Handicrafts Development Corpn
of Kerala Ltd 670
Hindustan Aluminium Corpn Ltd 676
Hindustan Insecticides Ltd 664
Hindustan Lever Ltd 49
Hiralal & Co 620
Hotel Mandovi 616
Hotel Nagarjuna 46
Hyderabad Asbestos Cement
Products Ltd 652

I

Indian Bank 54
Indian Oil Corpn Ltd 62
Indian Oxygen Ltd 36
Indo Leather Industries 592
Integral Coach Factory 48

J

J & J Dechane 792
Jit Singh Chandokar Co 53
Joseph Michael & Bros. Pvt Ltd 674

K

K. A. Karim & Sons 596
Kala Cartons Pvt Ltd 640
Karkana Zindia Tilismath 4
Karnataka State Industrial
Investment & Development Corpn 34
Karnataka Steel & Wire Products Ltd 680
Kerala Agro Machinery Corpn 658
Kerala Ceramics Ltd 660
Kerala Co-operative Central Land
Mortgage Bank Ltd 632
Kerala Dinesh Beedi 644
Kerala Financial Corpn 648
Kerala Gears 678
Kerala Match Syndicate 788
Kerala Minerals & Metals Ltd 580
Kerala State Cashew Development
Corpn Ltd 656
Kerala State Coir Corpn Ltd 668
Kerala State Co-operative Bank Ltd 622

Kerala State Financial Enterprises Ltd 688
Kerala State Handicrafts Apex Co-operative Society Ltd 628
Kerala State Handloom Weavers' Co-operative Society Ltd 648
Kerala State Housing Board 650
Kerala State Industrial Development Corpn Ltd 634
Kerala State Industrial Enterprises Ltd 638
Kerala State Lotteries 614
Kerala State Small Industries Corpn Ltd 796
Kerala State Textile Corpn Ltd 788
Kerala State Warehousing Corpn 686
Kerala Tourism Development Corpn 682
Kerala Transport Co 22
Kirloskar Electric Co Ltd Back Cover
Kothari & Sons 662
Kottayam District Co-operative Milk Supplies Union Ltd 600
Kumar Industries 636

L

Libra Tourist Home 584

M

Madan Mitra Aushadalaya 40
Madras Chit Funds Pvt Ltd 6
Madras Rubber Factory 20
Mafatlal Services 8
Malabar Copt. Central Bank Ltd 672
Marine Products Export Development Authority 586
Mohan's Industrial Training Centre 798
Mohan Meakin Breweries Ltd 798
(Black Knight Whisky) 806
Mohan Meakin Breweries Ltd (Golden Eagle Lager Beer) 14
Mohan Meakin Breweries Ltd (Golden Oak Malt Whisky) 30

N

Natesan's Antiqarts 596
N. K. Poduval & Co 800
New Kerala Chits & Trades Pvt Ltd 588

O

Orient Paper Mills Ltd 580

P

Palghat Co-op. Central Bank Ltd 610
Plantation Corpn of Kerala Ltd 616
Poyilakada Enterprises
Premier Cotton Spinning Mills Ltd
Public Relations (D) Dept, Kerala
P. V. S. Beedi Pvt Ltd 3rd Cov
P V. Ukkuru

R

Radhas Packages & Chemicals Enterprises Ltd 61
Rajmohan Cashews Pvt Ltd 57
R. K. V. Motors & Timbers Pvt Ltd 600

S

Scindia Steam Navigation Co 8
Shenoi Trades & Agencies
Shyamala Investments 2nd Cov
Sirpur Paper Mills Ltd 48
Sivaram Industries 608
South India Chemicals & Fertilisers Ltd 59
Southern Railway 794
Southern Roadways 42
Sree Krishna Temple, Guruvayur 59
Sreevatsa Engineering & Trading Co 62
Sri Ramakrishna Oil Mills
State Bank of India
State Bank of Mysore
State Bank of Travancore
State Family Planning Bureau, Kerala
State Institute of Languages, Kerala
S. V. Products
Syed Agencies (Bismi Ball Pens)
Syndicate Bank

T

Techno Chemical Industries Ltd
Times of India 5
Tourism Development Corpn Ltd, Kerala 684
Travancore Cochin Chemicals Ltd 612
Trichy Steel Rolling Mills Ltd 4
Trivandrum Hotel 604
Trivandrum Spinning Mills Ltd 65
Tube Investment of India Ltd
Tyresoles Goa Pvt Ltd

U

Union Bank of India
Union Carbide of India

V

Venkatesh Naik Mohandas
Vijaya Bank Ltd